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THE

MEDICAL SPECTATOR.

ST MARY'S HOSPITAL
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MANCHESTER.

VOLUME

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,
Printed, by J. NICHOLS, for the AUTHOR:
And Sold by J. PRIDDEN, N° 100, Fleet-Street;
CREECH, Edinburgh; PRINCE and COOKE, OXFORD;
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EPISTLE DEDICATORY.

To ROBERT HARRINGTON, M. D.

(Carliſle.)

SIR,

IF this Volume of the MEDICAL SPECTATOR has any merit, it muſt be chiefly owing to the admiſſion of thoſe Papers which, under a general enquiry into the diſtribution of heat through the different objects of nature, comprehend a view of ſome part of your philoſophical opinions. Impreſſed with this idea, I am particularly called upon to addreſs to you the compliment of dedication, which cuſtom appears to have ſanctioned, and which is too often made a vehicle for adulation only.

Having given admiſſion to thoſe Papers, it may be juſtly inferred that I believe in the truth of your Theory of the Atmoſphere, and of all the deductions which have been drawn from it.

I am not inſenſible to the danger which I run, by thus preſuming to ſtand forth an advocate for that ſyſtem of philoſophy which hath not yet been honoured with the general approbation of eſtabliſhed criticiſm. It is, therefore, reaſonable to expect that I ſhall participate the cenſure which you have experienced. Prudence might have dictated on my part a very different conduct; but, if at any future period I ſhall be happy enough to ſee the ſentence reverſed, and to hear philoſophers in general admit, as an incontrovertible fact, that the atmoſphere is *compoſed* of *fire*, *water*, and the aërial *mephitic acid*, in a ſtate of NEUTRALISATION, I ſhall be amply repaid for the mortifications which I hope I am not unprepared at preſent to receive.

I am, with all poſſible reſpect,

SIR,

Your moſt obedient humble ſervant,

THE AUTHOR.

London; *March* 31, 1792.

CON-

CONTENTS.

N° I. The Medical Spectator's Account of himself and his Intentions P. 12
II. Pays a Visit to Mrs. Pandora Dysoon, and finds her afflicted with a new Class of Diseases, viz. the Atmospherical 15
III. Serious Reflections on Atmospherical Diseases 33
IV. Some Account of the different Members of the Medico-Spectatorial Club 49
V. Cursory Remarks on the Use of Opium, particularly in the Venereal Disease 65
VI. On the Importance of the Skin in the Animal Œconomy 83
VII. On the Cure of Aneurism, particularly the poplitœal 97
VIII. A Letter to the Medical Spectator, on the Merits of the Harringtonian Theory of the Atmosphere 115
IX. The Author pays a Visit to his Bookseller in Disguise, but, having the Misfortune accidentally to set his Wig on Fire, is recognised 133

N° X. A general View of the Diſtribution of Heat through the different Objects of Nature, comprehending an Enquiry into the Principles of the Harringtonian Theory of the Atmoſphere 147
XI. The ſame ſubject continued 163
XII. Analogy betwixt the Exiſtence of fixed Air in alkaline, and inflammable Air in metallic, Subſtances 181
XIII. Enquiry into the Diſtribution of Heat through the different Objects of Nature continued 195
XIV. The ſame Subject continued 209
XV. The ſame Subject continued 227
XVI. The Subject continued 239
XVII. The Subject continued—Ceſſation of Life 257
XVIII. Contains a Letter to Dr. Harrington, on the Subject of his Theory, and its Superiority to thoſe of M. Lavoiſier and Dr. Crawford 275
XIX. On the Value of ſmall Portions of Time, and the Neceſſity for diligent Application to Study, addreſſed to Medical Pupils 301
XX. The Abſurdity and pernicious Conſequences of an Advertiſement for the Sale of Dr. James's Powder pointed out, in conciſe Remarks on the Nature and Treatment of the Meaſles 315
XXI. An Account of a great Literary Character admitted as a Viſitor to the Medico-Spectatorial Club 329
XXII. The Author recounts his good Fortune in meeting with Mayow's Medico-phyſical Tracts 343

N° XXIII.

N° XXIII. Remarks on the feeding and cloathing of Children; dangerous Tendency of an Idea of Mr. Locke on theſe Subjects 361
XXIV. Chemical Criticiſms
XXV. The Author confirms the Accuracy of Dr. Beddoes's Analyſis of Mayow's chemical Opinions, and draws a Parallel betwixt the Fate of theſe and thoſe of Dr. Harrington 389
XXVI. A Biographical Sketch—the Miſer and the Spendthrift conſidered as labouring under a mental Diſeaſe.—Chemical Criticiſms 407
XXVII. Different Correſpondents noticed—the firſt Volume concluded 425

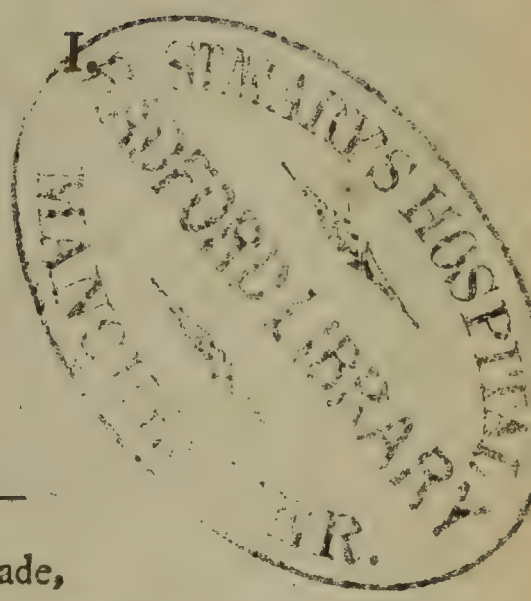
Errors and Omissions.

P. 61, l. 11, for *ſtrict* read *ſecret*.
62, 20, read, under *the preſſure of* his hand.
94, 1, for *gives* read *give*.
105, 15, for *tournequet* read *tourniquet*.
327, 2, read, whoſe *little* ſtomachs.

THE

MEDICAL SPECTATOR.

NUMBER I.



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THE

MEDICAL SPECTATOR.

NUMBER I.

SATURDAY, October 1, 1791.

Tentanda Via eſt.

THE author of every periodical paper, from the TATLER to the LOITERER, hath deemed it neceſſary to give the publick ſome account both of himſelf and of his intentions at his firſt ſetting out. They have, in general, endeavoured to conciliate the good opinion and the favour of the world, either by aſſuming a very high degree

of importance, or by large profeſſions of diſintereſtedneſs and philanthropy.—It is perhaps agreeable to this eſtabliſhed cuſtom that the MEDICAL SPECTATOR informs his numerous Readers that he is the *ſeventh ſon of a ſeventh ſon*. Which, from a long-eſtabliſhed and preſcriptive privilege, precludes the neceſſity of adding, that he hath been regularly educated in every branch of the profeſſion at the firſt medical ſchools in the world.—For the ſatisfaction of future biographers it may not be improper to mention, that his perſon is neither ſhort nor tall; his addreſs neither graceful nor awkward; but that, from exceſſive ſtudy, his countenance is ſallow, and, to uſe a familiar phraſe, his corporation thin. Like his great predeceſſor, the GENERAL SPECTATOR, he is remarkable for taciturnity, but keen in obſervation.—At the Univerſity he was deemed a fellow of no mark or likelihood, and only noticed by this ſingular circumſtance, that he was never known

known to be abſent from a lecture; and was generally amongſt the firſt who entered, and the laſt who quitted, the lecturing room.

ALTHOUGH he cannot ſay with his predeceſſor abovementioned that he has travelled to the Pyramids of Egypt, he can with truth aſſert, that he hath four times croſſed the Equinoctial Line, and hath as often been ſeen meditating upon the Banks of the Ganges: from whence he can alſo with equal truth declare, that he has returned to his native country without the addition of a ſingle rupee to his fortune.—The ſkull of a Gentoo, remarkable for the ſingular diſpoſition of its *oſſa triquetra*, is perhaps the moſt extraordinary and the moſt valuable of all the ſpoils of the Eaſt with which his cabinet was enriched. Diſplaying it with ſingular ſatisfaction to Gripo, his guardian, the wretch, regardleſs of the *oſſa triquetra*, obſerved, "that it was entirely empty —

Had it been filled with gold mohurs, with pagodas or diamonds, it would have been worthy of notice.'—"Yes," I replied, "had it been filled with diamonds, my dear uncle, it would have been of little conſequence, I ſuppoſe, whether I had picked it up bleaching with the ſun and the air on the Banks of the Ganges, or whether I had ſevered it reeking from the ſhoulders of the original poſſeſſor."

I MUST here, however, guard my readers againſt imbibing a diſagreeable impreſſion, becauſe firſt impreſſions are things of the greateſt moment. Should he adopt the idea that I am ſome poor, needy, medical adventurer, half the wit and learning, half the medical, chirurgical, philoſophical, and phyſiological diſcoveries which my enſuing papers are to contain, would ſcarcely be ſufficient to prevent him from treating me with all that contempt which the world in general offers to great talents

lents in a thread-bare coat.—The MEDICAL SPECTATOR therefore takes upon himself to say that he is one amongst the richest of his profession—for in his house there is no want of servants in laced liveries—venison and turtle, port and madeira, claret and costly *liqueurs*, are not wanted at his table —Neither does he stand in need of a side-board of plate, or an elegant equipage. Superb apartments, rich carpets, fashionable furniture, and valuable pictures, are in a similar predicament; for, of all these, he possesses more than he requires. At a very early period of life he discovered that the better half of riches consists in the moderation of desire. Hence he very soon became easy in his circumstances, and at last absolutely independent. And what more than independence can be obtained by the most successful, the most laborious application to business? Independence once established, it necessarily follows that the peevishness of the sick,

and the jealouſy of the profeſſion, ſoon became inſupportable. But a regard for, and a ſincere deſire to improve the ſcience, continue to be the grand principles, the leading character, the ruling paſſion of his life: whilſt love of eaſe, and compaſſion to his fellow-labourers, will prevent him from ever making himſelf known, leſt the reputation of his enſuing work ſhould bring him again into laborious practice, to the great mortification and loſs of his brethren. He is determined, therefore, in no inſtance whatever to interrupt or interfere with their emoluments. But, in conſequence of this very generous condeſcenſion on his part, he hopes that the whole body of the faculty, both pharmaceutical, chirurgical, and medical, will, on theirs, look up to him with complacency, as to a common friend and benefactor.

The

The plan of the MEDICAL SPECTATOR, who means not to follow the beaten track, to plod on, "qua facit aciduo tramite vulgus iter." Admitting of medical tattle, and medical anecdote, he flatters himſelf that he ſhall ſoon be able to eſtabliſh a reſpectable correſpondence, and that, if he ſhould fail in his endeavours to amuſe and to improve, his readers will of themſelves occaſionally take up the pen, and make amends for his deficiency. He preſumes that every medical man who thinks for himſelf, muſt at leaſt be in poſſeſſion of one or two ideas—from which a paper may be formed.—They who are too diffident to plunge at once into open day-light, may thus gradually feel their way before them. If an Eſſay or a Paper is well received, they may triumph amidſt their little circle of admirers as the ſucceſsful authors. On the contrary, if it ſhould be condemned, they have nothing to do but to keep their own council, and to let

the MEDICAL SPECTATOR bear the burthen of reproach, and the ſarcaſms of the critic. Whilſt, however, he offers this general invitation, he thinks it neceſſary and proper to add that no Paper will be ever admitted, which appears to be calculated to anſwer either a partial, intereſted, or malicious purpoſe. On the contrary, whatever tends to improve the ſcience, or, on general grounds, to amuſe its profeſſors, will meet with the moſt candid attention.

IT is a well-known maxim, that Spectators often ſee more of the game than they who are playing it. To this maxim may poſſibly be, in ſome meaſure, aſcribed the great general information of the Medical. Ever ready to communicate improvement to his brethren, and always exempt from the ſuſpicion of the ſmalleſt deſign to circumvent; —the jealouſies, the complaints, the little grievances and private mortifications, the triumphs and exult-

ations

ations of thoſe who are immerſed in the fatigues of the profeſſion, are freely laid open to him. In caſes of litigation and diſpute, he hath not unfrequently been appealed to by both ſides, and has thus been enabled to render two well-meaning and worthy competitors good friends, who have been upon the eve of a deadly feud from the perplexing tattle of nurſes and goſſips.

THE author is aware that an attempt to publiſh and ſupport a periodical paper on a plan like this, will by many be deemed a chimerical undertaking. Already he is informed that his bookſeller ſhakes his head, and conſiders the poſſeſſion of the copy but as a poor ſecurity for the expence of advertiſement; whilſt his tailor, with a ſorrowful countenance and a trembling hand, takes his meaſure for a full-trimmed ſuit of black. In vain hath he repreſented that the greateſt undertakings have often appeared doubtful at the firſt attempt.

In

In vain hath he repreſented the multiplicity of medical men with which this enormous city abounds. Not a ſtreet of any conſequence but what will furniſh, upon a ſudden emergency, at leaſt a dozen regulars, every one of whom he flatters himſelf, will be happy and proud to be occaſionally the reputed author of a MEDICAL SPECTATOR. And each particular Hoſpital he conſiders as containing a cluſter of young MEDICAL SPECS.—Theſe alone will form a reſpectable body of readers; but theſe are not all, for he truſts that the empirical and the anile practitioners will find themſelves deeply concerned in his future progreſs; and ſhould his work be read by every medical old woman and every quack in the city of London, the men of learning, of ſkill and reputation, if they pleaſe, may turn upon their heels—neither his tailor nor his bookſeller will have reaſon to complain.

N. H.

THE

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NUMBER II.

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THE MEDICAL SPECTATOR.

NUMBER II.

SATURDAY, OCTOBER 8, 1791.

Da facilem curſum atque audacibus annue cœptis. VIRGIL.

"She then began to enumerate ſeveral complaints which ſhe thought would carry her to her grave. It was eaſy to ſee they were of the ſlighteſt kind, though it would not have been agreeable to have told her ſo, for ſhe loved to be thought ill, to be attended, and flattered; ſhe was, however, in theſe circumſtances, ſo perfectly good, ſo converſable, ſo elegant in all her manners, that her phyſician would have been tempted to wiſh never to ſee her well." BRUCE's *Travels to Abyſſinia.*

THERE is perhaps no circumſtance which adds more to the profeſſional reputation of a medical man than that of having pointed out either a new

diſeaſe, or ſome circumſtances of diſeaſe which had not been previouſly obſerved. I flatter myſelf, that my Paper of to-day will in this reſpect enable me to rank high in the profeſſion, at the ſame time that it will afford a ſtriking proof how little attention ought to be paid to the reſolutions of man. After ſo very ſolemn a declaration, that I would in no inſtance whatever either interrupt or interfere with the emoluments of the faculty, I confeſs it is with a bad grace that I ſit down candidly to acknowledge that I have been already obliged to forfeit my word. I foreſaw indeed, as I have already obſerved, that the reputation of this work would be in danger of bringing me again into laborious practice; but I little thought that this would ſo immediately take place as to call me forth at this early period of my exiſtence. The fact, however, admits of no diſpute; for ſcarcely had I time to finiſh the fifty-ninth peruſal of my firſt Paper, when a note was delivered

to

to me, ſuperſcribed in the moſt delicate and feminine hand, "*To the* MEDICAL SPECTATOR." My ſervant at the ſame time informing me, that a very reſpectable-looking gentleman, with a large full-bottomed wig on his head, and a gold-headed cane in his hand, was waiting below, deſirous of ſpeaking with me, at the ſame time that a very handſome chariot, gaily embelliſhed with a lozenge, was ſtanding at the door. The note was couched in the moſt plaintive and perſuaſive ſtyle, from a lady who calls herſelf *Mrs.* PANDORA DY SOON, requeſting that I would for once have the goodneſs to diſpenſe with the reſolution which I have already mentioned, and, in compaſſion to her ſufferings, permit *Mr.* SYMPATHY, her apothecary, firſt to ſtate her caſe, and then to conduct me to her preſence. I was in fact taken by ſurpriſe, before I had uſed the proper precautions to eſtabliſh myſelf *incog.* and the note was ſo well ſeconded by the eloquence of my

viſitor, that I found myſelf unable to refuſe my attendance, and was actually ſo far a ſlave to my feelings, as to enter the chariot together with Mr. SYMPATHY, who informed me, *en paſſant*, that the lady was ſiſter to the late JEREMIAH DY SOON, Eſq. whoſe very ſingular hiſtory is related in the 24th and 45th Numbers of the LOUNGER, and who, at his death, had bequeathed the whole of his fortune to this favourite ſiſter of congenial conſtitution. Mr. SYMPATHY at the ſame time dropped hints reſpecting the lady's great generoſity; and upon the whole concluded by obſerving, that ſhe was a patient *worth attending*. The chariot, however, at this particular juncture driving up to the door, we were admitted a full hour before it was poſſible to have a ſight of the lady, who had fallen into a pleaſant ſlumber after taking her aſſes milk. Mr. SYMPATHY therefore, in the mean time, propoſed our ſtepping into the anti-chamber, which Mrs. DY SOON had appropriated

appropriated for a place of exerciſe, a *grand place d'armes*, a medico-gymnaſtic repoſitory, where every invention that could contribute to the comfort or accomodation of the diſeaſed was to be found, and where a ſpecies of morbid luxury preſented itſelf. On a large ſide-board appeared Mudge's inhaler, an apparatus for impregnating water with fixed air, a variety of veſſels and tubes of different ſhapes and ſizes, for partial fumigations. On a table ſtood a whole bale of blue flannel, which had been nine times faithfully dyed; and contiguous ſtood every article of the fleecy hoſiery, viz. ſtockings and ſocks, and ankle pieces; knee caps, night caps, and travelling caps; feet baſkets and pantaloons: blankets equal to the fineſt Eider-down quilts; together with a robe, a morning gown, a dreſſing gown, wrapping gown, and under petticoat, of the ſame manufacture. Oppoſite to the windows ſtood a chamber horſe of the old, and a ſpring plank of the lateſt,

conſtruction. In one corner ſtood a ſlipper for the warm bath, and, attached to the cieling, a cullender for the cold. Fleſh bruſhes of different forms were placed upon the top of a very elegant family medicine cheſt, in which a bottle of the *Liquor volatilis cornu cervi*, and all the moſt valuable articles of the late edition of the Pharmacopœia, were regularly arranged. To theſe were added a liſt, too tedious to be mentioned, of empirical remedies, comprehending indeed every medicine which has been offered to the publick, by advertiſement, during the laſt ten years, ſo as to occupy a much larger compartment of the medicine cheſt than even the regular formulæ of the College; nothing being omitted from Dr. James's fever powder to the opodeldoc of Dr. Steers. There was a neat mahogany book caſe, of ſimilar ſize and form, containing Buchan's "Domeſtic Medicine," and a variety of other medical books. The firſt number of "The MEDICAL SPECTATOR," together

together with the laſt of "The Botanical Magazine," were expanded upon a Pembroke table, cloſe to an elbow chair of Mr. Merlin's conſtruction, over the back of which hung a pair of bootekins, whilſt a probang was placed within reach, in caſe of any ſudden ſuffocation. On the window ſeat I obſerved a pair of battered dumb bells, cloſe to a bottle of Ruſpini's ſtyptic; and, on one ſide of the chimney corner, a ſtop watch was dangling from a braſs nail; on the other was ſuſpended a ſmall thermometer; and, on the mantle ſhelf, I could perceive a packet containing ſix nervous draughts, and a tea cup. In ſhort, there was no poſſible avenue by which Death could make his approach that did not appear to be cautiouſly guarded and defended.

Whilſt I was contemplating the ſcene before me, word was brought by a very decent and reſpectable old lady, under the denomination of a nurſe, that her miſtreſs was ready to receive us; and we

were accordingly ushered into her apartment, where I discovered a very delicate lady in an horizontal posture, upon a bed of singular construction; a multiplicity of metallic points, projecting from the tester, reminded me of the electrical apparatus of Dr. Graham. These metallic points, Mr. SYMPATHY informed me, were for the purpose of conducting phlogiston from the lungs, which Mrs. PANDORA, who reads every medical and chemical essay, had lately discovered to be a deadly poison. This, however, being no time for chemical or philosophical disquisition, I thought it proper to address myself to the lady, assuring her, that though I could not in every respect communicate my sentiments like a physician in actual practice, yet that it would give me much satisfaction if I could render myself useful to her. "Mr. SYMPATHY, I suppose Sir," she replied, "has given you a regular detail of my sufferings. I believe, Sir, I may truly say that I have had

had almoſt all the advice which Great Britain can beſtow. After conſulting every medical man of eminence in the remoteſt parts of Scotland, I took a journey to the capital of that antient kingdom, that I might put myſelf under the care of the moſt celebrated profeſſor in Europe, who pronounced my caſe to originate in a ſpaſm of the ſmall veſſels (I ſpeak medically, Sir, becauſe medical language is familiar to our family). He talked much of great mobility, and a *peculiar modification* of the nervous ſyſtem. I perſevered, Sir, with the utmoſt regularity to the concluſion of his *methodus medendi*; and was diſpoſed to perſevere ſtill further, when the doctor, who was one day a little jocular, aſſerted that my caſe was an epitome of the whole ſyſtem of pathology; and, in lieu of a ſyllabus, propoſed to give a courſe of clinical lectures on my various diſeaſes. I was hurt, Sir, at this idea, and made the beſt of my way to London, where the

practice of phyſic, if not the theory, is carried to a more *extravagant* pitch than in any other city in the world. Here, Sir, I was perſuaded to conſult the late Dr. Bruin, who had eſtabliſhed a very high degree of reputation, by diſcovering that his predeceſſor was an illuſtrious idiot, and the whole ſyſtem of ſpaſm an abſurdity. Dr. Bruin, without a moment's heſitation, pronounced my caſe to be of the aſthenic ſpecies, and not only preſcribed, but very chearfully joined me in taking copious doſes of brandy and laudanum, till, like poor Dr. Doddipol, my late brother's phyſician, * * * * * * *. By Sir John and Sir Richard I was blooded, *pleno rivo*, till my legs were turned topſy-turvy. The late Dr. Hugonienſis, Sir, pronounced my caſe to be an enlargement of the liver, and gave me immenſe quantities of camphire, in every ſhape, without the ſmalleſt advantage. Him, however, I diſcovered to be but the ſhadow of a better man, and of courſe

ſoon applied to his name-ſake and prototype, the *great* Dr. Hugo Ferrarius, and a pleaſant man he certainly was. Mr. SYMPATHY will inform you, Sir, that, under his directions, I ſwallowed at leaſt a hundred weight of ruſty iron. But at this period, Sir, I was adviſed, in the uſual way, to conſult the celebrated German doctor, who pronounced my complaint to be a *ſecretion upon the kidneys*; and, notwithſtanding I could never conceive that theſe words had any meaning whatever annexed to them, I took his tincture of tanſy and his turpentine pills, his æther and water, and ſyrup of cloves, with the greateſt perſeverance; but, finally quitting the German doctor, I placed my whole confidence in animal magnetiſm. This, Sir, I conceived to be the *ne plus ultra* of medicine, and was now determined to ſit down, and patiently ſubmit to thoſe evils which admit of no remedy, and to go on quietly palliating with the nervous draughts, under the ſole direction of

my

my friend Mr. SYMPATHY, when "The MEDICAL SPECTATOR" was uſhered into the world. Again my hopes revive; and here I am, Sir, ready to follow any plan that the MEDICAL SPECTATOR may think proper to preſcribe."

It would appear tedious to my readers was I to give a regular detail of every queſtion and anſwer. Mr. SYMPATHY having given me a hint that the lady was commencing the ſtudy of botany, I was fortunate enough to ſtrike out ſome ideas which gave her a very favourable opinion of my ſkill. "May I requeſt, Madam, that you will juſt mention the moſt urgent ſymptoms of your very complicated caſe? I flatter myſelf I ſhall be able to point out the natural remedy for each." "Such obſtructions in the liver, ſuch wheeſing in the lungs, ſuch pain in the region of the ſpleen."—"Liver wort, lung wort, and ſpleen wort. But one at once, good Madam, if you pleaſe." "Palpitation of the heart."—"Heart's eaſe."

eaſe." "Dimneſs of ſight."—"Euphraſia, or eye-bright." "Spitting of blood."—"A necklace of blood ſtone." "Stone in the kidneys."—"Saxifrage, or the ſtone breaker." "Worms, from the tape to the aſcarides."—"Wormſeed and wormwood." "Conſtant fever."—"Feverfew." "Eat up with the ſcurvy."—"Scurvy graſs." "But I have a thouſand complaints which I have not yet mentioned." "Then, Madam," I replied, "it will be proper to come to ſomething of a more compendious mode of preſcribing; your caſe indeed, in one word, ſeems to require a tincture or infuſion of *all heal*."

"I think, Dr. Villers," ſaid the lady, calling me by my name, "I feel myſelf better already; and I approve ſo exceedingly of the ideas which you have thrown out, that I muſt requeſt you, Sir, to inform me what my diſorder really is; to call it a complication is merely what has been done by every perſon I have conſulted. As to the words

words *bilious* and *nervous*, I deteſt them both, they are become ſo very low and ſo vulgar: now-a-days every whimſical woman is nervous, and every gormandiſer bilious. Thus, my neighbour, Mrs. Megrim, is nervous all over the moment her huſband refuſes to take her to the play, or the pantheon. And Mrs. Guttle, after waſhing down a pound of freſh ſalmon, and three plates of rich ſoup or harricoe, with a pot of porter and a bottle of wine, imagines her ſickneſs to proceed from a load of bile. But I, Sir, who am temperate in my diet, and miſtreſs of my own actions, have no ſuch reaſon to aſſign for diſeaſe. If the morning is fine, my carriage is at the door, ready to take me wherever I pleaſe; but ſo very delicate is my nervous ſyſtem, that I am a martyr to every change of weather. I can tell, Sir, before I riſe in the morning, without conſulting the barometer, whether it will be rain or fair, whether the wind is in the Eaſt or the

Weſt,

Weſt, the North or the South." "Your caſe, Madam," I replied, "is perfectly clear, notwithſtanding it has been hitherto ſo very much miſtaken. I can aſſure you, Madam, that you are neither bilious nor nervous, neither ſcorbutic nor hyſteric, neither gouty nor rheumatic, neither hectic nor hydropic, nephritic nor diabetic, paralytic nor apoplectic. I am ready, indeed, to acknowledge that you may have occaſionally been under apprehenſions of all theſe affections; but the grand ſource of your complaints, Madam, is this,—your conſtitution, Madam, is ATMOSPHERICAL."

"There, Mr. SYMPATHY!" ſaid the lady, "what do you think of that? But, learned doctor," ſhe added, after a moment's heſitation, "if I am really, as you ſay, *only atmoſpherical*, to what purpoſe am I to take the liver wort, the lung wort, and the ſpleen wort, the ſcurvy graſs or the wormwood, the ſaxifrage or the feverfew? Would it not be better practice at once to give phyſic

phyſic to the winds?" This juſt and very natural remark had nearly got the better of my gravity; but, ſummoning up a very ſerious look, I hoped ſhe would agree with me that it was proper to attend to the ſymptoms and effects, till ſuch time as it might be in our power to regulate the cauſe; and concluded by aſſuring her, that very great expectations were entertained by the Royal Society of accompliſhing this important point, a very worthy member having expreſſed the moſt ſanguine expectations. "And if (ſays he) it ſhould "ever be in the power of human in-"genuity to govern the courſe of the "winds, *which probably depends on ſome* "*very ſmall cauſes*, by always keeping "the under currents of air from the "S. W. and the upper currents from "the N. E. I ſuppoſe the produce and "*comfort* of this part of the world "would be doubled at leaſt to its inha-"bitants, and the diſcovery would "thence be of greater utility than any

"that

" that has yet occurred in the annals " of mankind." PHIL. TRANS. Vol. LXXVIII. p. 52.

" What amazing diſcoveries," exclaimed Mrs. DY SOON, " the Royal Society is making on the ſubject of the circumambient atmoſphere! How comfortable the proſpect! But what am I to do, Dr. Villers, in the mean time, till this great object is accompliſhed?" " All that I have hitherto preſcribed, Madam," I replied, " is for temporary relief only; but for the radical cure, Mrs. DY SOON, it is indiſpenſably neceſſary that you ſhould take a long ſea voyage, at leaſt to the other ſide of the Atlantic; and let it be, Madam, by all means, in a veſſel in which there ſhall be neither a medical book, nor a medicine cheſt, nor a nervous draught, nor a medical man."

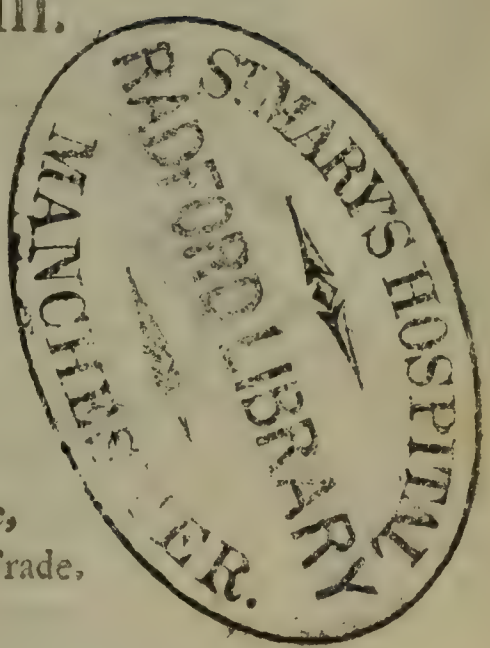
" Oh, Mr. SYMPATHY! Oh, Dr. Villers! you ſhall certainly be obeyed; but as well might you order the captain to ſlip his anchor, and proceed without maſt or ſail, compaſs or rudder——."

N. H.

THE

MEDICAL SPECTATOR.

NUMBER III.



A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,

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MDCCXCI.

THE

MEDICAL SPECTATOR.

ST MARY'S HOSPITAL RADCLIFFE LIBRARY CHESTER.

NUMBER III.

SATURDAY, OCTOBER 15, 17

Verum, ubi tempeſtas, et cæli mobilis humor
Mutavere vias; et Jupiter humidus auſtris
Denſat, erant quæ rara modò, et quæ denſa relaxat;
Vertuntur ſpecies animorum, et pectora motus
Nunc alios; alios, dùm nubila ventus agebat,
Concipiunt. VIRGIL.

FROM the general tenor of the letters of my correſpondents, I find the Medical World is very much in doubt whether I really mean ſeriouſly to perſiſt in my idea of the exiſtence of *atmoſpherical diſeaſes*. One correſpond-

ent very gravely accuſes me of endeavouring to turn the whole practice of phyſic into ridicule. Another, whoſe letter is dated from the ſurgery of one of the Royal Hoſpitals, conceives that, like the mountebank doctor, I am acting the droll, merely to procure a number of readers; and, in a poſtſcript, adds, that when he looks around him, and ſees ſuch a multiplicity of competitors breeding up to the practice of phyſic, he deſpairs of ſucceeding in the regular line of his profeſſion, and very condeſcendingly hints, that, if I have any thoughts hereafter of mounting the ſtage, a Merry Andrew may be wanting, whoſe place he conceives himſelf eminently qualified to ſupply, and which, he flatters himſelf, will be no objection to his acting in future in the higher character of Doctor himſelf. To this facetious youth I can only reply, that though I believe, from ſome paſſages in his letter, that he may be able to paſs his examination with credit at Surgeon's Hall, yet

yet a great deal more is neceſſary properly to ſupport the character which he ſeems ambitious to adopt. To my other and more ſerious correſpondents I can only obſerve, that I do moſt aſſuredly mean to maintain the exiſtence of various diſeaſes, which merit the appellation of *atmoſpherical*; and which, to the great detriment of the ſick, and the perplexity of practitioners, are every day miſtaken for others which they only reſemble. It is not, however, my intention to enter very minutely into the ſubject, but to confine myſelf to a few of thoſe caſes and inſtances which have fallen under my own obſervation, and in which the influence of certain changes in the atmoſphere, though felt every day by thouſands, is known actually to exiſt only to a few.

There is hardly any perſon inſenſible to the pleaſing and exhilarating effects of fine ſerene weather; and few but what feel, in ſome degree, a contrary ſenſation when the heavens are obſcured

with clouds. If ever the mild and genial flow of the animal ſpirits is interrupted in myſelf, it is during bleak and windy weather. Every practitioner of phyſic knows that a cold, ſharp, and froſty ſtate of the atmoſphere is productive of chapped lips, chilblains, pleuriſy, acute rheumatiſm, and a variety of other inflammatory affections; and that heat and moiſture occaſion thoſe which are of a contrary nature. It is alſo well known, that the ſpaſmodic aſthma in particular is often very much influenced by peculiar ſtates of the atmoſphere. The Eaſt and the North-eaſt winds are proverbially known to be injurious, not only to thoſe who are denominated nervous and hypochondriacal, but even in ſome degree to the ſtrong and hardy. For my own part, I am very well convinced that certain changes in the ſtate of the atmoſphere are not more frequently indicated by the ſhooting and aching of corns than by a variety of other morbid feelings,

which

which are ſeldom ſuſpected, either by the patient or the phyſician, to originate in ſuch a ſource.

It will be impoſſible, in the narrow limits which are preſcribed to a periodical paper, to enter ſo deeply into the ſubject as to point out what the particular circumſtances and changes are which take place in the atmoſphere, with their relative effects on different conſtitutions and different ſtates of the human frame. Theſe muſt be left to future and more laborious diſcuſſion; but, I flatter myſelf, it will be executing a taſk deſerving publick praiſe, if I can convince a number of practitioners, who have never turned their thoughts to this ſubject, that, perhaps at this very moment, they may be ſtimulating and diſtreſſing ſome of their patients with emetics and cathartics for the bilious colic, who are in fact only ſuffering the peculiar influence of ſome alteration in the weather, the effects of which would ſpontaneouſly, and perhaps ſpeedily, ſubſide.

Inſtead, therefore, of entering into any very abſtruſe and difficult enquiries reſpecting the relative connexion betwixt the atmoſphere and the exiſtence of animal life, I will briefly communicate ſome of the facts which have occurred in the courſe of my own obſervations, leaving them to be explained either in ſome future Paper, or by ſome of my more enlightened readers. It is my intention, therefore, in this Paper, to dwell rather on thoſe complaints, or morbid feelings, which are tranſient like the changes in the atmoſphere, from which they originate, than to enlarge upon thoſe very ſevere and continued diſeaſes which, though at firſt often occaſioned by peculiar ſtates of the atmoſphere, continue to afflict the patient long after thoſe ſtates of the atmoſphere are changed and forgotten; ſuch as the eryſipelas, pleuriſy, acute rheumatiſm, catarrh, and perhaps croup, and a variety of others that might eaſily be enumerated.

I am

I am at this moment perſonally acquainted with a very worthy man, who had the misfortune to ſtrike the back part of the nail of his left thumb againſt the edge of a ſpade at leaſt fifty years ago, by which he received a ſevere contuſion in the part, which to this day has in ſome degree altered the ſhape of the nail; and, from the time the wound was healed to the preſent day, he has occaſionally experienced the moſt excruciating pain in the part whenever the weather changes from a mild and ſerene ſtate to the reverſe. It is remarkable that the pain is moſt excruciating ſome hours before the change, and gradually leſſens ſome hours after it takes place. During mild and ſerene weather he is comfortable, though ſeldom perfectly eaſy. But his thumb, he aſſures me, is moſt feelingly alive at the approach of thunder. I have often heard him lament that he had not ſolicited amputation at an earlier period in life; and he would now ſubmit to an inciſion to the bone, which

I have recommended, if his advanced age did not diſcourage the experiment.

I have myſelf occaſionally experienced, during a conſiderable part of the eighteenth century, an uncommon degree of languor, laſſitude, and dull pain in the loins, for ſeveral hours preceding the approach of cloudy and rainy weather, and ſtill more ſtrikingly during the time and preceding a ſtorm of thunder. I have known a young lady, of the moſt lively and chearful diſpoſition, who has been able, with a wonderful degree of certainty, to predict a ſtorm of thunder, by an uneaſy and painful ſenſation in her elbows. During high winds, the membraneous expanſions in different parts of the body, in certain perſons, are extremely liable to very painful ſenſations. From this cauſe I have repeatedly ſeen the moſt excruciating head-achs, alarming pains in the abdomen, ſevere vomitings, and diarrhœa. I am the more anxious to draw the attention of practitioners to this ſubject,

ſubject, becauſe I am certain that I have repeatedly ſeen, from this peculiar excitement, diſcharges from the ſtomach of a graſs green, or æruginous appearance, which not only the patients themſelves, but very ſkilful practitioners, have conſidered as the cauſe, rather than the effect, of the pain and uneaſineſs which the patients have felt, but which, I am well convinced, have been of the ſame nature as thoſe which appear in certain hyſteric affections, where the cauſe is often ſeated in the mind.

It is obvious to remark, that in this peculiar kind of colic, which I beg leave to denominate *atmoſpherical*, any other evacuating medicine than ſimple warm water, camomile tea, whey, or chicken broth, muſt be injurious, and that recourſe may be almoſt immediately had to anodynes, which, added to the comfort of a warm bed, and a ſoft pillow, will ſeldom fail in a ſhort time to give relief. I wiſh I could point out

any diſcriminating or characteriſtic marks by which this peculiar colic may be diſtinguiſhed from that which is really and properly denominated bilious. The true bilious colic happens much ſeldomer than is generally believed to the ſame patient; the ſpurious indeed, or that which is repeatedly excited by errors in diet, and falſely denominated bilious, is much more common, and both are moſt effectually relieved by emetic and cathartic medicines. But the atmoſpherical, which is generally aggravated by their uſe, may be ſuſpected to exiſt, when the ſame patient is liable to very ſudden and very frequent attacks at a time that no error in diet, nor any probable accumulation of bile, can be ſuſpected. The true bilious colic moſt frequently appears during the ſereneſt and mildeſt ſeaſon in the year, whilſt the atmoſpherical is experienced in the worſt weather, and in every ſeaſon. And I think we may be convinced of its exiſtence, whenever we have

have had ſeveral opportunities of remarking the ſame patient to be ſubject to the ſame attack during ſome peculiarly diſagreeable weather. Thus, if a perſon apparently in good health, after a temperate meal, lies down to ſleep, and wakes in the night with pain in the head and ſickneſs, if he immediately, or in an hour or more after waking in this ſtate, hears the rattling of hail, rain, and ſtorm, againſt the windows of his bed-chamber, there will be little doubt of his actually labouring under the atmoſpherical head-ach, perhaps combined with the colic. If, in a ſimilar manner, a patient is repeatedly attacked with ſevere pain in the abdomen, followed by a looſeneſs—my readers may ſmile, but I would alledge that this patient is afflicted with the *atmoſpherical diarrhœa*. To theſe may be added the atmoſpherical lumbago, and a long train of diſtreſſing feelings, which may properly come under the appellation of atmoſpherico-nervous ſenſations.

Many

Many of the diſorders which I have enumerated require reſt and a recumbent poſture; but, where they will admit of it, particularly the leſs grievous affections, they will be moſt effectually obviated by the patient cloathing himſelf warmly and comfortably, and then ſallying forth, with a determined reſolution to face the enemy.

Should the ideas which I have ſuggeſted be admitted, and the caſes recognized, it will be evident, that, during the progreſs of many acute diſeaſes, it may be of very great conſequence to attend to theſe circumſtances, as a change of weather may often give the appearance of an exacerbation of diſeaſe, or of a new ſymptom, which in the medical treatment it may be leſs neceſſary to regard. But I believe it will always be proper to be very cautious in communicating to patients an idea that we apprehend their ſymptoms are occaſioned by an alteration in the weather, which generally gives as much offence

as

as an attempt to rally nervous and low-ſpirited perſons out of the unneceſſary fears and apprehenſions which they are ſo very apt to entertain. Atmoſpherical patients, who are generally of the nervous claſs, conſider it as making very ſlight of their complaints, and are all very apt to exclaim, with Mrs. DY SOON, if their diſorders are only occaſioned by the weather, to what purpoſe is any medical plan or regimen propoſed? They well know their feelings to be real; and there are perhaps but few diſeaſes which call more loudly for our compaſſion, ſince no care or attention on the part of the ſick can prevent their frequent recurrence.

Nor is it the body only which is tortured by changes in the atmoſphere, for the functions of the mind are equally liable to derangement from this cauſe; nor do I know of any writer who appears to have been more ſenſible of this than a very learned predeceſſor of my own. "There are perhaps very few

"conditions

" conditions (he obſerves) more to be
" pitied than that of an active and ele-
" vated mind labouring under the weight
" of a diſtempered body; the time of
" ſuch a man is alwas ſpent in forming
" ſchemes, which a change of wind
" hinders him from executing; his
" powers fume away in projects and in
" hope, and the day of action never
" arrives. He lies down delighted with
" the thoughts of to-morrow, pleaſes
" his ambition with the fame he ſhall
" acquire, or his benevolence with the
" good he ſhall confer. But in the night
" the ſkies are overcaſt, the temper of
" the air is changed, he wakes in lan-
" guor, impatience, and diſtraction, and
" has no longer any wiſh but for eaſe,
" nor any attention but to miſery."
RAMBLER, N° 48.

There are no doubt ſome hearts of oak, totally regardleſs of every change in the atmoſphere, to whom this Paper may appear either frivolous or unintelligible. But thoſe who may be induced

to enter with attention into the ſubject will ſoon be convinced that, upon many occaſions, very conſiderable diſadvantages may ariſe, if ſuch commotions as I have deſcribed under the appellation of atmoſpherical ſymptoms are, upon every occaſion, treated agreeably to the appearances which they may put on. Reſt and quiet, and ſoothing anodynes, or chearful company and good wine, are the proper antidotes. Theſe laſt, however, though certainly for the time very efficacious, are dangerous expedients; for I am well convinced that many a robuſt man, who little ſuſpects it, has gradually given himſelf up to drunkenneſs, from no other cauſe than flying occaſionally to the exhilarating effects of the bottle and glaſs, to counteract the uneaſy ſenſations excited in the nervous ſyſtem by certain ſtates of the weather; and that many a delicate female, formed for the happineſs and comfort of ſociety, from ſimilar cauſes, hath bartered and exchanged all the pleaſures

pleaſures and endearments of life for the reiterated, gloomy, ſelfiſh, and ſolitary gratifications contained in a pocket phial of laudanum. It is in the gloomy month of November that Engliſhmen are ſaid to have a propenſity to hang and drown themſelves. Perhaps the firſt author of this obſervation, and ſubſequent writers who have handed it down from one to another, have never ſeriouſly regarded it as an obſervation founded in truth; but I, who have carried my reſearches farther into this ſubject than the generality of my readers, am well convinced, not only that drunkenneſs and bankruptcy, but that many an act of ſuicide, has really originated in the influence of a gloomy ſky.

N. H.

THE

MEDICAL SPECTATOR.

NUMBER IV.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

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M DCC XCI.

THE MEDICAL SPECTATOR.

NUMBER IV.

SATURDAY, OCTOBER 22, 1791.

——— *auimæ, quales neque candidiores*
Terra tulit, neque queis me ſit devinctior alter. HORACE.

I FLATTER myſelf that my two laſt Papers, the ſubjects of which have been in ſome meaſure forced upon me, will afford a proper apology for the interruption which my plan hath ſuſtained, and which I now reſume, that I may give my Readers an account of my aſſociates in this arduous undertaking; for, as a work of this magnitude and importance cannot be ſuppoſed

to be entirely and ſucceſsfully carried on by one perſon, it becomes neceſſary further to inform my Readers that we are eight of us in all, excluſive of the old woman who lights our fire and duſts the room, a neat, ſnug, private apartment, in which we have inſtituted a regular hebdomado-medico-ſpectatorial club, contiguous to my preſent reſidence in *Villers Street* in the Strand. Here we aſſemble free from all ceremonious reſtraint; without any other rules than thoſe which reſult from good-breeding and a high degree of perſonal friendſhip and eſteem for each other. Here, my friends who ſtill continue in full practice, and who are every day approaching nearer and nearer to the divine character, "ſalutem hominibus dando," enjoy a grateful relaxation from the fatigues of the week. Here we may ſay with Martial, "quicquid venerit obvium loquamur." Our converſation, therefore, is not always confined to phyſic. It is remarkable, indeed,

that

that when there is but one medical man in a convivial party, the converſation is very apt to turn upon medical ſubjects; but when it conſiſts entirely of medical men, it is a well-known and, perhaps, a juſt remark, founded moſt probably on the eſtabliſhed practice of conſultation, that phyſic is almoſt the only ſubject excluded. We are, however, an exception to this general rule, for we often ſpeak on medical matters; and, as our number, excluſive of myſelf, comprehends two eminent phyſicians, two excellent men-midwives, two ſurgeons of eſtabliſhed reputation, and one reſpectable apothecary, it may with propriety be ſaid, that in us the whole commonwealth of the Medical World is repreſented, as the world at large was ſaid to be by the aſſociates of my predeceſſor, the great general SPECTATOR.

Whatever ſubject is new and extraordinary in phyſic is generally introduced by one or other in particular, and commented upon by the company at

large. It is to theſe amuſing and inſtructive converſations, to which, if I am not often a contributor, I am always an attentive liſtener, that I am frequently indebted for the hints which, to the edification of the profeſſion at large, will expand the next day into the form of a MEDICAL SPECTATOR.

As we are all men that have ſtood the brunt of the day, whoſe characters are well eſtabliſhed, and whoſe circumſtances are eaſy, all little jealouſies are done away; and the mutual joke, which we can chearfully give or take, "petimuſque damuſque viciſſim."

The firſt of our ſociety, whoſe name I ſhall mention, is Dr. PLACEBO, a diſciple of Stahl; a kind, attentive, humane, friendly phyſician; from whoſe unaſſuming manner, it is not generally known to the faculty that he is profoundly ſkilled in his profeſſion. Nor will the remarkable neatneſs and ſimplicity of his preſcriptions account for the general ſucceſs which attends his

his practice: he himself, indeed, with candour acknowledges, that if he hath been sometimes more successful than his contemporaries, it is chiefly owing to his influence in obtaining a stricter and more diligent attention to perseverance in regimen. I know that the illiberal part of the profession have frequently ascribed his most brilliant instances of success to the "vis medicatrix naturæ," the influence of the medical soul. And it may, perhaps, with justice be observed, that few physicians have more successfully studied the "ars curandi morbos cunctatione." The mildness and placidity of his countenance, the suavity of his attentions, and the unmercenary decorum of his visit, always leave the most agreeable impressions on the minds of his patients and their friends, who are never tired with his visits. These circumstances, added to his frequently just and always well-guarded prognostic, even in his unsuccessful cases, have

added greatly to his reputation, and have ſecured him the confidence and eſteem of every family to which he hath been introduced.

Dr. DASH is poſſeſſed of an excellent capacity, a good genius, and ſome learning, with little attention. He is a good figure, was a firſt-rate beau at the univerſity, excelled all his competitors in dancing and fencing, and ſtill ſings a good ſong; drinks his bottle, and with a ſmart oath confirms his aſſertion. Whatever knowledge he poſſeſſes lies looſe on the ſurface, and is conſequently ever in view. Hence he has the reputation of being quick in his conceptions; but his eye often wanders; and his attention will ſometimes be drawn aſide, either to a newſpaper or to the looking-glaſs, whilſt his patient is all eye, all ear, all attention, to every minute unneceſſary circumſtance of his diſeaſe. It is related of him, that once, when a lady of diſtinction was giving him rather a prolix detail of an

inceſſant diarrhœa, Dr. DASH, whoſe eye, both mental and corporeal, had been wandering, whoſe ideas, either ruminating on the tranſactions of the preceding, or anticipating thoſe of the enſuing, evening, were *tout-à-fait éloignée* (with the pulſe in one hand, and the chain of the ſtop-watch dangling from the other), after a ſilence of more than one minute and three quarters, during which her ladyſhip concluded that he was thinking intenſely of her caſe, "Now my lady," ſaid he, "give me leave to aſk one queſtion. How long is it pray ſince your ladyſhip had a μοῖον το ςοολ?" There is a frankneſs in his manner, and ſuch an apparent contempt of his fee, ſo thorough a conviction of this important truth, "aliquando pecuniam negligere maximum eſt lucrum," that, notwithſtanding in the courſe of his practice he hath met with the ſevereſt cenſure in particular inſtances, it is not ſurpriſing that he ſhould be looked up to by the pub-

lick at large as to the oracle of medicine, the *ne plus ultra* of the profeſſion. His preſcriptions in general, though very inelegant, and horridly nauſeous, are ſwallowed with the utmoſt avidity; the filthineſs conveying an idea of ſomething uncommonly efficacious in the compound.

Perhaps the following may be no bad inſtance of the manner in which Dr. DASH hath acquired his reputation for quickneſs of conception. Being conſulted in a very obſtinate caſe of jaundice, which had reſiſted all the moſt judicious preſcriptions of PLACEBO, Dr. DASH placing the fore finger of his right hand upon the pit of the patient's ſtomach, without aſking a ſecond queſtion, demanded where the pain was ſeated. "There! there! Sir," replied the aſtoniſhed patient, "exactly where your finger preſſes, through to the backbone!"—*Verbum ſat.*—"D—n me," ſaid the Doctor, "*ſomething* muſt be *done* here." A very powerful emetico-cathartic

tic was immediately prescribed; but, as some time had intervened betwixt the last visit of Dr. PLACEBO, and the administering the medicine of Dr. DASH, the *anima medica* having had a longer time to exert her influence, Mr. CANDOR, the apothecary, had the pleasure in the interim to perceive that the obstructions were removed, and the patient in a fair way to be speedily well, and the emetico-cathartic unnecessary. But the sick man, who would listen to nothing which tended to interrupt his eagerness to profit by the skill of Dr. DASH, of which he had now formed the most extravagant ideas, swallowed the potion, which, though it had nearly killed him, he to this day considers as the preservation of his life. Whilst Mrs. *Bluemantle*, a neighbouring lady, all the time assumes the principal merit of the cure; having secretly bribed the nurse to substitute Mrs. ——'s infallible cure, viz. a strong infusion of the bark of

barberry, inſtead of the apozem preſcribed by Dr. PLACEBO.

If there is ſome little alloy in his compoſition, it ariſes chiefly from the poſſeſſion of a certain talent which very often paſſes for wit amongſt common obſervers, and which Horace, in three words, hath ſo happily deſcribed, viz. "naſo ſuſpendere adunco." The Doctor, however, plays it off with ſo much neatneſs and addreſs, that the party, who "hangs upon his ſneer," is not always ſenſible of his ſituation. Thus, when Dr. CROTCHET, the other evening, was fatiguing the Club by a detail of ſome prolix, and rather novel ideas reſpecting the *material* nature of the rays of light, and the diurnal revolution of the earth, Dr. DASH in a moment enlivened our attention, by declaring, "that he would very ſhortly write a paper on this ſubject, which he had not the ſmalleſt doubt would procure him Sir GODFREY'S gold medal; and immediately ſported the following as a leading

leading idea, viz. *that, the centrifugal and the centripetal forces being given, the diurnal revolution of the earth depends entirely upon the* impulſe *of the rays of light ſtriking it in an oblique direction.* Hence," continued the Doctor in the following anticlimax, at the ſame time elevating his voice into a recitative tone, " the terraqueous globe, and all things therein contained, the cloud-capped towers, the gorgeous palaces, the ſolemn temples, yea even the MEDICO-SPECTATORIAL CLUB itſelf, are ſcourged and whirled around, *magno in gyro*, like the *volubile buxum* of Virgil.

Dr. CROTCHET and Mr. SINGLEBLADE are two excellent man-midwives, each of them remarkably adroit in the uſe of the reſpective inſtrument from which they take their names; and which they have both been very unjuſtly ſuſpected of having ſometimes prematurely applied. No credit, therefore, is due to an illiberal ſtory which paſſes amongſt nurſes and goſſips, that dame Nature, in the form of a wrinkled old *mede* wife,

wife, brought a chopping boy into the world ſafe and ſound whilſt the Doctor was gone ſome little diſtance for his inſtrument. Mr. SINGLEBLADE, on the contrary, more provident and attentive, more deciſive and active, affirms that he never goes upon duty without his inſtrument in his pocket, which Dr. PLACEBO ſlyly aſcribes to the dread of a ſimilar interference of the *anima medica*. Whatever truth or foundation there may be (from the conduct of the profeſſion at large) for theſe reports, we all know that the uncommon tenderneſs, the encouraging aſſiduity and attention of Dr. CROTCHET, have in many inſtances ſafely conducted his patients through the moſt laborious and difficult caſes; where, in almoſt any other hands, dejection and deſpair would have rendered it neceſſary to have had recourſe to the dangerous interference of mechanical aid: whilſt it may with equal truth be affirmed, that many an hour of laborious and diſtreſſing parturition hath been ſafely ſhortened by the

the dexterity of Mr. SINGLEBLADE. The mutual friendſhip and eſteem ſubſiſting betwixt theſe two gentlemen have rendered them reciprocally uſeful to each other, and a bleſſing to many a private family.

Mr. HAWK'S-EYE and Mr. CUTWELL are experienced ſurgeons of very different characters. The firſt, who is truly ingenious and ſcientific, from exceſs of feeling, has a ſtrict averſion to the knife, which he conſequently uſes too ſparingly; but he is ſo fertile in expedients, that he has been repeatedly known to perform cures where amputation, and other painful operations, have been regarded as unavoidable. Mr. CUTWELL, on the contrary, who amputates with the ſame dexterity, the ſame eaſe, and indifference, that he pares his nails, is a ſtanding proof that the ſucceſsful amputation of one limb goes a greater way toward the eſtabliſhment of a ſurgeon's name than the preſervation of twenty. If the firſt of theſe gentlemen was to be conſulted in

a caſe

a caſe of incarcerated hernia, there would be ſome little danger of his heſitating till mortification actually took place, and then, perhaps, operating unſucceſsfully. Mr. CUTWELL, on the contrary, would be tempted to have recourſe to the knife at too early a period, when, by patience and perſeverance, relief might be obtained without it. Of this there was once a very ſtriking inſtance: Mr. CUTWELL, having every thing prepared for this dangerous operation, called in his friend Mr. HAWK'S-EYE to aſſiſt, who ſpeedily reſcued the patient by placing him again upon his head, and in that attitude plentifully ſprinkling the tumefaction for half an hour with cold water; after which he had the ſatisfaction to feel the tumour gradually leſſen under his hand, and the patient as gradually change a ſtate of the moſt intenſe pain, and the moſt imminent danger, for the inexpreſſible pleaſure of eaſe and ſafety.

Mr. CANDOR, who ranks as an apothecary, is a conſcientious and ſkilful prac-

practitioner, in whom every duty of the profeſſion, in all its branches, hath been occaſionally fulfilled with honour and ſucceſs. But ſuch is the caprice of the public, that to theſe very circumſtances it is owing that he who is every day giving proofs of his ſkill, both as a phyſician, a ſurgeon, an apothecary, a man-midwife, and, I may add, a nurſe, ſhall never obtain half the degree of reputation, in any one of theſe characters, which men of inferior abilities in all have rapidly acquired. There is a maxim which, I believe, will generally hold good in phyſic, that the reputation of one medical man is ſeldom promoted by another. To a magnanimous, and, perhaps, erroneous, inattention to this maxim it is owing, that Mr. CANDOR, regardleſs of the cenſure of the vulgar, but anxiouſly ſolicitous to obtain the good opinion of the enlightened part of his profeſſion, feels year after year glide ſilently away, while he continues, in point of reputation, nearly where he ſet out; conſcious

ſcious of abilities in himſelf, and, at the ſame time, conſcious of diſtruſt on the part of thoſe who have repeatedly been benefited by his aſſiſtance. There are ſome individuals, however, who know his value, and who have been witneſſes to the many ſtriking inſtances of his accurate prognoſtics, who will be exceedingly diſtreſſed whenever he puts in practice a reſolution, which he hath long been forming, to quit the mortifying ſtate of ſubordination in phyſic, for the comforts of retirement, and the more pleaſing ſtudy of the belles lettres and philoſophy.

Having already, in my firſt paper, given ſome account of myſelf, I muſt refer ſuch of my readers as wiſh for a more intimate acquaintance with me to that and the ſucceeding numbers of this work, in which they may poſſibly diſcover the true character of the MEDICAL SPECTATOR.

N. H.

THE

MEDICAL SPECTATOR.

NUMBER V.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,
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M DCC XCI.

THE MEDICAL SPECTATOR.

NUMBER V.

SATURDAY, OCTOBER 29, 1791.

"Who ſuck pollution through their tingling veins."
YOUNG.

DR. DASH, who hath lately been reading a periodical publication entitled "THE LOITERER," rallied me very much the other evening, and made the whole club merry at my expence; having *ſmoaked* me, as he termed it, in the twenty-ſecond number of that work, which he inſtantly pulled out of his pocket; declaring that it could not poſſibly be any other than

VILLERS that had cut ſuch a quizzical figure. The fact is this: during my laſt viſit to the univerſity of Oxford in 1789, having occaſion to ſpend ſome little time in King's coffee-room, whilſt I was muſing over a newſpaper, being ſtruck with an account, in one ſingle advertiſement, of forty thouſand perſons having been cured of the venereal diſeaſe, I ſuddenly and audibly exclaimed, as indeed we are all rather wont to do when any thing in a very particular manner engages our attention, "Upwards of forty thouſand perſons of both ſexes! Good God!" ſaid I, "what a ſituation muſt the cities of London and Weſtminſter be in!" It hath given me great ſatisfaction ſince, to think that this accidental exclamation ſhould have excited ſo much pleaſantry and good humour as it did in the company preſent, and ſtill more that it ſhould have afforded a hint or groundwork for ſeveral of his ſucceeding papers to the very reverend and celebrated

author

author of The LOITERER, who hath ſince become my good friend. Converſing with him the other day on the ſubject of that advertiſement, "It is aſtoniſhing," he remarked, "that any young perſon can be ſo loſt to every ſenſe of decency as to boaſt publickly of this diſgraceful ſpecies of affliction;" yet, if we are to believe the ſatirical writings of our predeceſſors, there can be no doubt that this cuſtom hath prevailed during the whole of the preſent century, and perhaps to a greater degree in the early part of it than at this day. But, if we take a ſurvey of the manners of the people of this country ſo far back as the middle of the laſt century, we ſhall find very different ideas prevailing; for at that time, ſuch was the diſgrace attending this diſeaſe, that ſome of the medical writers themſelves appear to have been doubtful even of the propriety of attempting to cure it. How ſtrangely are the times altered! Every newſpaper now contains advertiſements which hold

forth the moſt flattering and encouraging hopes of relief.

The pleaſantry of Dr. DASH gave a bias to the converſation for the evening, which very naturally turned upon the remedies which from time to time have been conſidered as ſpecific in the venereal diſeaſe; the doctor himſelf confeſſing that he had been greatly diſappointed in the effects of opium, which have been aſſerted, by ſeveral foreign writers, to be a valuable remedy; but for his own part he did not believe that, in regard to this particular diſeaſe, it was poſſeſſed of any merit whatever. "There, Sir," ſaid Dr. PLACEBO, "I differ from you exceedingly. I am very far from believing that opium is poſſeſſed of any peculiar ſpecific property in regard to the venereal contagion; but, under certain circumſtances of debility, it is undoubtedly the greateſt cordial in nature. It is capable of relieving many of the painful ſymptoms attendant on this diſeaſe; and in certain

caſes, where the conſtitution of the patient as well as the virus of the diſeaſe has been nearly deſtroyed by mercury, it is not at all ſurpriſing that upon a liberal uſe of opium a reſtoration to health has taken place. But this ariſes merely from its general property of ſoothing pain, and procuring the great cordial of Nature, ſleep; during which, irritation ceaſes, and nutrition, together with the other ſalutary operations of the ſyſtem, proceeds undiſturbed. Beſides, my dear Sir, the good effect of opium in this diſeaſe is by no means a modern diſcovery. There was a period, Sir, viz. towards the latter end of the laſt century, when a pill which conſiſted chiefly of opium was regarded almoſt as an univerſal panacea. The puritanical Dick Mathew, who lived next door to the lions den in the tower, uſed to diſpence it by ounces and pounds; and to this day, notwithſtanding all our alterations, it continues to bear his name. "I ſolemnly proteſt," he ob-

ſerves in an octavo treatiſe * of 192 pages on the virtue of this pill, "that I do "in my conſcience believe that I do "receive more ſtrength and nouriſh- "ment by a good pill than from the "beſt meal's meat I ever eat in all my "life."

"The virtues of opium were at that period very little known in this country; but will any man of experience in the preſent day doubt either the truth or the propriety of this remark?

"After enumerating a liſt of caſes, in which appear aſthma, palſy, ſurfeits, blindneſs, agues, fevers, coughs, catarrhs, palpitations, ſtone and gravel, bloody flux, bloody urine, gout, rheumatiſm, king's evil, ſmall pox, dropſy, convulſions, conſumptions, jaundice, abortion, cramp, ſcurvy, ſciatica, rickets, ill conditions, and a long liſt of other diſeaſes, almoſt equal to that which occurs in Dr. Young's treatiſe on

* "The unlearned Chemiſt his Antidote, &c. &c."

opium,

opium, he ſays, "Furthermore, this "pill helpeth the French diſeaſe (com-"monly called the pox, or French pox) "if it be effectually uſed." But let us ſee with what care and caution, what diffidence and reſerve, he ventures to inform the publick of this particular virtue of his pill; which I truſt will put our modern advertiſing gentlemen, our Swifts and our Eaſtlands, our Leakes and our , and fifty more, to the bluſh. "Before I come," he continues, "to ſhew its effectual uſe "as to this diſeaſe, I muſt crave leave "to ſpeak a little (but tenderly) to two "or three ſorts of people; for ordi-"narily this diſeaſe comes not without "abundance of wickedneſs; and I "tremble to think of it, much leſs to "ſet down its cure, without proteſting, "on God's behalf, againſt thoſe accurſed "ways that bring men into it; and "indeed were it not for the ſakes of "many good men and women, whom "I do judge in my conſcience to be

" chaſte, and are infected through the
" wickedneſs and unfaithfulneſs of their
" yoke-fellows, I durſt have ſaid no-
" thing of it at all; and although there
" are but few in number comparatively,
" yet far be it from any honeſt mind
" to deny them help. Solomon in his
" Proverbs ſaith, 'Stolen waters are
" ſweet, and bread eaten in ſecret is
" pleaſant; but they conſider not that
" Death is there, and that thoſe ſteps
" lead down to hell;' and ſuch is the
" abhorring of my ſoul againſt this
" wickedneſs, whereby this diſeaſe is
" for the moſt part gotten and come
" by, that it is a ſore fear leſt I ſhould
" be a means to help any miſcreant to
" ſudden cure that is reſolved to perſe-
" vere in this abomination, and double
" his ſins againſt the God of mercies;
" and, foraſmuch as the righteous
" judgements of God overtake the
" wicked, plaguing them even in the
" force of their luſts, ſhall I be an in-
" ſtrument of their relief yet to ſin?

" God

" God forbid it; but for thoſe that " truly repent and ſhew it by a chaſte " cönverſation, I ſhould think it a hap- " pineſs to be a healer, an eaſer of the " pains of all ſuch." After ten more pages equally pious, the author ventures to mention a caſe. " This wretch (ſays he) " being ſtrong, held out " ſome time; but abuſing himſelf in all " blaſphemies, riot, and exceſs, in due " time the rot or the pox overtook him; " but, I ſpeak of this one man, his tor- " ments grew ſtrong upon him, and to " me (of all men) he would not come " or ſend; what he uſed as means was " too weak; and thus for a long time " he lived blaſpheming God, and roar- " ing out of his torment. At laſt he " and his wife, uſing the mediation " of another, ſent to me. I could not " deny her things for her money; he " was then paſt coming himſelf. She " ſaid his heart was as whole and as " ſound as ever; but, except he had " one of my pills in his belly, he did

" lie

" lie rocking his limbs, and roaring
" out of his intolerable pain; and the
" next week that ſhe came to me, this
" ſtrumpet with impudence ſaid ſhe
" ſhould die of no diſeaſe but the pox;
" and her friend that came with her
" told me, that as this man was ſitting
" by himſelf, his noſe fell off from his
" face with mere rottenneſs."

" Mathew's pill became at laſt the faſhionable panacea of the day; and whoever will take the trouble to peruſe his account of its virtues will only find an exaggerated relation of the real and ſalutary effects of opium, blended with a number of ſucceſsful caſes, in the cure of which it could have little or no ſhare. Opium at that period gave celebrity to Mathews, an obſcure and ignorant man, at the ſame time that Sydenham was riſing rapidly into reputation, perhaps in a great meaſure at firſt from his good ſenſe teaching him to diſregard the idle prejudices againſt this now celebrated and valuable drug; for

for that extenſive fame which Sydenham gained by his writings was an acquirement poſterior to the reputation eſtabliſhed by his ſucceſsful practice. The commencement of Sydenham's reputation depended on his curing the diſeaſes, and relieving the pains, of thoſe who had been unſucceſsfully treated by his contemporaries; and I ſhall ever believe that this was in many inſtances owing to his good ſenſe having at a very early period taught him to treat the reigning prejudices againſt opium with contempt. In Sydenham may be obſerved the phyſician of real learning and ſkill, adopting the uſe of a valuable medicine, and clearly diſtinguiſhing its nature and properties; in Mathews, an unlearned man of common ſenſe, ſtruck with the ſalutary effects of an heterogeneous compound, in which that ſame valuable drug exerts its influence, in ſpite of a jumble of ingredients with which, under the idea of correction or improvement, it had been combined. Sydenham,

ham, in ſpeaking of opium, thus expreſſes himſelf. "And truly I cannot "here forbear mentioning with grati- "tude that omnipotent God, the giver "of all good things, has not provided "any other remedy for the relief of "wretched man, which is ſo able either "to quell more diſeaſes, or more effec- "tually to extirpate them, than opiate "medicines taken from ſome ſpecies of "poppies. And though there are ſome "that would fain perſuade credulous "people that almoſt all the virtues of "opiate medicines, eſpecially of opium, "principally depend upon their arti- "ficial preparation of it, yet he that "ſhall make experience the judge, "and ſhall as often try the ſimple juice, "as it comes by nature, as the prepa- "rations of it, if he be careful in his "obſervation, will ſcarcely find any dif- "ference; he will certainly know that "thoſe admirable effects which it pro- "duces proceed from the native good- "neſs and excellency of the plant, and

"not

" not from the ſkill of the artificer.
" And ſo neceſſary is this inſtrument in
" the hand of a ſkilful man, that
" without it phyſic would be very lame
" and imperfect; and he that rightly
" underſtands it will do greater things
" than can well be hoped for from one
" medicine; for ſurely he is very un-
" ſkilful, and little underſtands the
" virtue of this medicine, who only
" knows how to uſe it to promote ſleep,
" to eaſe pain, and to ſtop a looſeneſs;
" whereas it may be accommodated, like
" the Delphic ſword, to many other
" uſes: and it is really a moſt excellent
" cordial remedy, I had almoſt ſaid the
" only one which has been hitherto
" found amongſt the things of Nature."

" It is painful to remark that the good ſenſe, the truth, and beauty, of this whole paragraph, which ſo inimitably ſpeaks the ſentiments of every modern phyſician, ſhould have required a very conſiderable part of a century to be

be univerſally acknowledged and received.

Strict impartiality requires that I ſhould produce one more quotation from Mathews. "And foraſmuch as "the thing in its own property is a "meer cordial, and a great fortifier of "nature, the leaſt grain is profitable to "whole nature, and not in the leaſt "prejudicial." One cannot refrain from ſmiling when, ſpeaking of its uſe in particular inſtances, he ſays, "You will "find this pill to courſe and follow "wind up and down from head to heel, "as a dog followeth a hare through "every hedge and buſh." But the very firſt paragraph of Mathews's book diſcovers the myſterious and intereſted quack. "This," he ſays, "is a cor-"rector of all vegetable poiſons. This "that I have written is true, although "ſome there are which take it in foul "ſcorn that I ſhould profeſs that power "as to correct *opium*, and they them-

"ſelves

" ſelves cannot; but let ſuch contentious
" doctors know, that the gentleman is
" yet in very good health that drank
" two hundred grains of opium at one
" draught, which was of my correcting."
Thus did this equivocating canting quack endeavour *ſlyly* to lead the mind of his reader from ſuppoſing that the principal article in his pill was opium; a game which the empirical gentry ſtill ſucceſsfully play—" Not a ſingle grain of mercury." The word *vegetable* is now the faſhionable paſsport of almoſt every poiſonous mineral compound."

*** The communication ſigned ROBERT SCALPELLUM, from our friend EUGENIUS, has conſiderable merit, containing ſome ſtrokes of true wit, but upon the whole does not come within the plan of the MEDICAL SPECTATOR.

†*† *The*

†*† *The Author's beſt acknowledgements are due for the Eſſays bearing this ſignature* * * *, *which, together with the three volumes and the following Letter, have all been faithfully delivered.*

" *To Dr.* VILLERS.

" Sir,

" I am anxious to become a correſpondent of the MEDICAL SPECTATOR, and to partake of that fame which, like the trophies of Miltiades operating upon the mind of Themiſtocles, prevents me from ſleeping. But, being a modeſt man, it is utterly impoſſible for me to produce my qualifications in perſon; and I feel almoſt equally at a loſs in my firſt addreſs by letter; nor do I believe that I ſhould ever have been able to have ſurmounted this difficulty, had not the following epiſtle, in the works of a celebrated writer of Periodical Eſſays *, occurred to me, which ſpeaks my own feelings ſo plainly, that, *mutato nomine*, I cannot reſiſt the inclination to tranſcribe it.—" Sir, " A modeſt man ſends his ſervice to the author of " the [MEDICAL SPECTATOR], and will be very " willing to aſſiſt him in his work; but is ſadly " afraid of being diſcouraged, by having his firſt " Eſſay rejected; a diſgrace he has already woe- " fully experienced in every offer he had made of " it; but he comforts himſelf by thinking, without " vanity, that this has been from a peculiar favour

* " The Rambler," N° 10.

" of

" of fortune, which hath ſaved his performance
" from being buried in traſh, and reſerved it to
" appear with luſtre in the [MEDICAL SPECTATOR.]"

I am, Sir, Your moſt obedient humble ſervant,

AN OLD CHEMIST."

The beſt anſwer which I can give to this very modeſt gentleman, who appears to be too diffident even to pen a common epiſtle without the aſſiſtance of a previous model, will be, in the words of that writer from whom his letter is quoted.

" One of my predeceſſors has juſtly obſerved,
" that, though modeſty has an amiable and win-
" ning appearance, it ought not to hinder the ex-
" ertion of the active powers, but that a man
" ſhould ſhew under his bluſhes a latent reſolution.
" This point of perfection, nice as it is, my Cor-
" reſpondent ſeems to have attained. That he is
" modeſt, his own declaration may evince; and,
" I think, the *latent reſolution* may be diſcovered
" in his letter by an acute obſerver. I will, there-
" fore, adviſe him, ſince he ſo well deſerves my
" precepts, not to be diſcouraged, though the
" [MEDICAL SPECTATOR] ſhould prove equally
" envious or taſteleſs. If his Papers are refuſed,
" the preſſes of England are open; let him try
" the judgement of the publick. If, as it ſome-
" times happens in general combinations againſt
" merit, he cannot perſuade the world to buy his
" works, he may preſent them to his friends; and
" if his friends are ſeized with the epidemical
" infatuation, and cannot find his genius, or will
" not confeſs it, let him then refer his cauſe to
" poſterity, and reſerve his labours for a wiſer
" age."

But

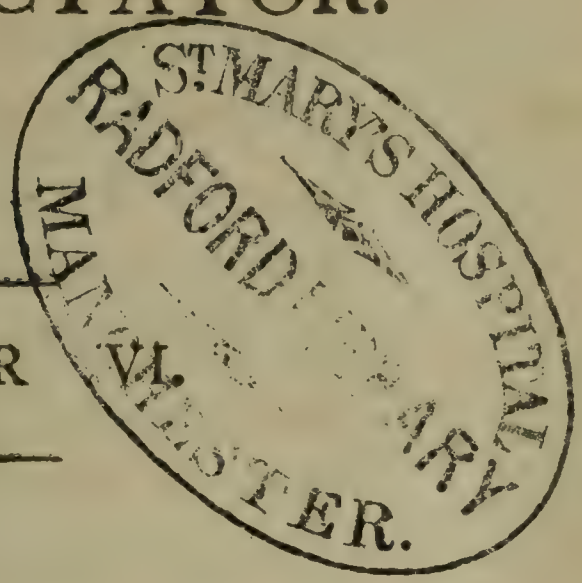
But, to be ſerious, my Correſpondent, if he reflects a moment, muſt know, that, however ſtrongly he may himſelf believe in the truth of thoſe doctrines which he ſo much admires, public ſoceities already warped by the celebrity of other theories almoſt univerſally received, and by which his favourite ones appear to be contradicted, muſt be ſhy of receiving Papers on a ſubject, and perhaps from a writer who is but little known. However, ſince it is the ETIQUETTE *of publick ſocieties,* " not as a body to vouch for the truth " of any relation, or to give authority " to any opinions which their volumes " may contain"—*under the ſanction of this eſtabliſhed cuſtom, it is not impoſſible but that the Author of the* MEDICAL SPECTATOR *may adopt theſe Papers, which he therefore informs his Correſpondent (from whom, upon any leſs intricate or controverſial ſubject, he will always be happy to hear), that they are taken* AD REFERENDUM. N. H.

ERRATUM in N° IV.

Page 61, line 11. *for* ſtrict averſion *read* ſecret averſion.

THE

MEDICAL SPECTATOR.



NUMBER VI.

A skilful Leech by long Experience made,
Who loves the Science, but detests the Trade.

LONDON,

Printed, by J. NICHOLS, for the AUTHOR,
And Sold by J. PRIDDEN, N° 100, Fleet-Street;
CREECH, Edinburgh; PRINCE and COOKE, Oxford;
MERRILS, Cambridge; W. MEYLER, Grove, Bath;
and all other Booksellers in Town and Country.

M DCC XCI.

THE MEDICAL SPECTATOR.

NUMBER VI.

SATURDAY, NOVEMBER 5, 1791.

Cutis concreſcit omnia contegens ex ipſo quoque ſemine, non ut quidem prodiderunt ex carne aridiore facta.

FERNELIUS de Hominis Procreatione.

Tanta ineſt in corpore membranarum commoditas, tanta neceſſitas, ut nullam natura partem prætermiſerit, quam membrana non integat, comprehendat et fulciat. Ibid.

Quo fit ut ſolius cutis contactu liceat de univerſi corporis temperamento pronuntiare. Ibid. De Temperamento.

THE brain and the nerves have been conſidered, by ſome very celebrated phyſiologiſts, as the original ſtamina from which every other part

of the human frame is gradually and ſucceſſively formed or evolved. This idea has been adopted from an obſervation, that in the earlieſt periods of geſtation, from the time that the embryo becomes a viſible and a tangible object, the head is conſtantly obſerved to be its largeſt part. But, in their eagerneſs to lay the foundation of a ſyſtem, phyſiologiſts appear to have overlooked one circumſtance, viz. that, whenever theſe obſervations have been made, this important part of the ſyſtem has always been found covered with ſkin perfectly formed. It is to me, therefore, ſomewhat ſurpriſing, that none of them have hitherto been hardy enough to pronounce the ſkin itſelf to be the fundamental part of the animal frame, the original ſtamen from which every other organ hath been ſubſequently evolved.

There is a period of geſtation in which the growth of the embryo has been conſidered as a kind of vegetative proceſs; and during this period it is not unrea-

unreaſonable to ſuppoſe that its nouriſhment is chiefly taken in by external abſorption. If I was diſpoſed, therefore, to fabricate a new ſyſtem, and to conſider the ſkin in this important point of view, many arguments might be drawn, from the appearance of the *fœtus in utero*, to give it countenance and ſupport. Arguments might alſo by analogy be drawn from the vegetable creation, in which, from the earlieſt traces of the germ, the ſkin or bark is undoubtedly the moſt important part in the ſtructure of every ſpecies. But I will not take up the time of my readers, by entering into deep and laborious diſquiſitions; nor attempt to trace the gradual formation of the human frame from its firſt viſible ſpeck of exiſtence: becauſe I flatter myſelf that it will not be difficult, even in the full-grown ſubject, to conſider the ſkin in a much more important light than it has hitherto been done by the generality of phyſiologiſts.

But before I proceed in this inveſtigation, it may not be improper to mention, that by the ſkin I wiſh to be underſtood to mean, not only the cuticle and the *cutis vera* but all that by ſurgeons and anatomiſts are denominated the common integuments covering the whole ſurface of the body like the bark of a tree; to which, in a more enlarged view, may with the utmoſt propriety be added the more delicate internal reflections of the ſame from the lips, the inſide of the cheeks, the tongue, fauces, &c. through the whole of the inteſtinal canal; and the internal ſurfaces of every cavity in the ſyſtem; together with the membraneous expanſions wherever they are found. In this extenſive view of the ſubject it will be evident, that whatever is admitted into the ſyſtem muſt pervade the ſkin, which may therefore through the whole animal machine be conſidered as an abſorbing ſurface, eſſentially neceſſary to nouriſhment and exiſtence.

It

It is well known that in the ſkin is ſeated a very conſiderable portion of thoſe indeſcribable emanations, beauty and deformity, which in a wonderful manner attach the very ſouls of the different ſexes, or render them diſguſting to each other. In different parts of the ſkin, under peculiar modifications, reſide the greateſt part of the ſenſes or feelings of the animal; and here alſo are to be found much of thoſe delicate lines and diſcriminations of feature on which is founded the ſcience, if it may yet be called a ſcience, of phyſiognomy both medical and general. The momentary dominion of the paſſions of the mind, fear, anger, and ſhame, grief and melancholy, courage and reſolution in the inſtant of danger, are all viſible in the countenance to the moſt inexperienced obſerver. It would be a waſte of time, and in a manner trifling with my readers, was I to add, that in the ſkin are to be ſeen the marks of health and

diſeaſe. Every eye can point out the εὔχρως and εὔσαρκος, the genuine plethora, the jaundice, dropſy, chloroſis, eryſipelas, and gout, and various eruptive diſeaſes; ſcrophula, agues, hectic and burning fevers.

The retroceſſion of *exanthemata* not only demonſtrates the ſympathy and affinity ſubſiſting betwixt the ſkin on the ſurface of the body and that which lines the inteſtinal canal, but at the ſame time proves how much more immediately the latter is in general connected with the vital principle. I ſay in general, becauſe an attention to the effects of various applications even on the external ſurface of the body will ſhew, that in ſeveral inſtances the moſt minute portion of the ſkin may become wonderfully important to animal life; which, from a variety of poiſonous and venomous applications, is capable of being totally deſtroyed by the ſlighteſt ſcratch. The whole ſyſtem will frequently ſympathize with ulcerations on the

the extremities excited by blisters and sinapisms, which I am convinced are much more frequently the cause of death than is generally known to, or perhaps than will be easily credited by, numbers who hurry over the common routine of practice without reflection or observation. Every surgeon of experience must have observed death occasioned by scalds and burns, where no very extensive surface of the skin has been injured, and where it has been difficult, *a priori*, to conceive that life could be endangered. But perhaps there is no argument can be made use of which will demonstrate the importance of the skin more than the following. It is a well-known fact, that a limb will become paralytic if the principal nerve which leads to it is either cut through, compressed, or destroyed; that mortification, both partial and general, will sometimes ensue upon similar injury to the principal artery; but it is also well known that in both cases

the limb will frequently continue to live. I believe, however, it will be allowed by every man of experience that, if the ſkin was to be totally removed from a limb in which the principal nerves and blood veſſels continue uninjured, death would certainly be the conſequence. It may indeed be alledged, that in this caſe it is not ſo much owing to the great importance of the ſkin itſelf, as to the injuries which the muſcular parts muſt ſuſtain from the mere circumſtance of expoſure. Admitting this to be the caſe, there are ſtill other phenomena, both pathological and phyſiological, which have not been generally obſerved, but which will point out, in a manner perhaps equally ſtriking, the importance of the ſkin in the animal œconomy.

The permeability of the ſkin from within outwards, or that peculiar property which is denominated inſenſible perſpiration, from the days of Sanctorius to the preſent time, hath engaged the

the attention of every phyſician. To the different modifications of this inſenſible perſpiration, whoſe exiſtence I by no means intend to diſpute, a large proportion of the diſeaſes of the human frame hath been aſcribed, but it has never been well underſtood: and of late, ſince heat hath begun to be conſidered as a material ſubſtance, it has been pretty generally ſuſpected by the beſt phyſiologiſts, that a conſiderable proportion of that loſs of weight, which hath been ſo long placed to the account of inſenſible perſpiration, is in fact to be aſcribed to the emanation or evolution of animal heat. While volumes have been written on the ſubject of inſenſible perſpiration, and almoſt every medical treatiſe hath paid more or leſs attention to it, the permeability of the ſkin from without inwards, which is to the full as important, hath, till very lately, been almoſt totally diſregarded. In ſome future paper I mean to enter very fully into this ſubject, which I ſhall therefore

now

now paſs over in a ſlight manner. There is, however, one modification of external abſorption, which hath been entirely overlooked by the different gentlemen who have favoured the world with their obſervations on the ſubject, which I will diſcuſs at preſent, and which is, I believe, unknown to the major part of my readers, as till very lately, I muſt candidly confeſs, it was to myſelf; and which it would in all probability have continued to be, had it not been for the favours of an obliging correſpondent.

About ten years ſince a work was publiſhed, entitled, "An experimental "Enquiry into the firſt and general "Principles of animal and vegetable "Life, &c. &c." a work, which, had it been written in a ſtyle equal to the importance of the diſcoveries which it contains, would long ſince have elevated its author to the firſt rank of chemical and philoſophical reputation. In this work were firſt demonſtrated the true

true conſtituent principles of the atmoſphere, and to this work the world was indebted for the firſt proof that phlogiſton, which is one of thoſe conſtituent principles, is taken into the ſyſtem in large quantities, paſſing through the ſkin or membrane which lines the internal ſurface of the lungs in order to combine with the blood as it circulates through the pulmonary veſſels. The author, even at that early period of his diſcovery, did not overlook the ſame quality inherent in the ſkin over the whole ſurface of the body, which, in a leſſer degree than that on the ſurface of the lungs, gives admiſſion to phlogiſton by decompounding the atmoſphere. He found every part of the ſurface of the human body to be endowed with this property, but ſome particular parts more eminently ſo than others. Thus the cheeks of thoſe perſons who are poſſeſſed of the ſanguineous conſtitution, where the blood comes nearly into contact with the atmoſphere,

atmoſphere, gives admiſſion to phlogiſton perhaps in as great a degree as the membrane which lines the internal ſurface of the lungs. To this circumſtance are owing the red and brawney arms of waſherwomen and others who keep them generally expoſed to the action of the air. On the contrary, where the hands, neck, and arms, are ſedulouſly covered from the atmoſphere, they acquire a delicate but ſickly complexion, and are in fact blanched in the ſame manner and upon the ſelf-ſame principles as endive or celery. And thus in perſons who are imperfectly nouriſhed, either in point of quantity or quality, the whole ſurface of the body ſoon loſes its animated appearance, the *vis vitæ* fails, and the blood no longer ruſhes to the external ſurface to come as nearly as poſſible into contact with the atmoſphere; but, in proportion as theſe perſons are indulged with richer nouriſhment, the ſkin again recovers its animated appearance: and, if we carry

our obſervations further, to thoſe who are under the influence of ſtill ſtronger ſtimuli, who indulge in high-ſeaſoned food, rich wines, and ſpirituous liquors, the red face, the pimpled noſe, the gout and eryſipelas, ſoon point out the rapidity with which this proceſs of decompoſition is going on betwixt the blood and the external atmoſphere; the whole frame being in a manner ready to catch fire, and the external ſkin in particular, having acquired nearly as great a diſpoſition to inflame upon the application of the atmoſphere, as the ſurface of every internal cavity when expoſed to its influence; a fact, well known in modern ſurgery, though hitherto in general but ill underſtood, and which, in ſome future Paper, I will endeavour to explain upon the principles of the new theory of the atmoſphere; being under the neceſſity at preſent to defer this intereſting ſubject, together with an application of theſe principles, to the management of the ſmall-pox.

Should

Should any or all of my readers be ſtartled at the idea of phlogiſton being *received* into the conſtitution, I have only to requeſt that they will for the preſent ſuſpend their objections, till the papers with which I have been favoured on this ſubject are fairly and fully laid open before them; and which, I am perſuaded, however widely they may differ from the received opinions of the day, will operate upon their minds in the ſame manner as they have done upon my own.

R. W.

THE

MEDICAL SPECTATOR.

NUMBER VII.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,
Printed, by J. NICHOLS, for the AUTHOR,
And Sold by J. PRIDDEN, N° 100, Fleet-Street;
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M DCC XCI.

THE MEDICAL SPECTATOR.

NUMBER VII.

SATURDAY, NOVEMBER 12, 1791.

Hæc quæ compreſſione fit, ſemper prius tam in vero, adhuc parvo, quam etiam in falſo, tentari debet: nam crudele eſt periculoſam ſectionem inſtituere, ubi blandiori modo curare poſſumus.

HEIST. de Aneuryſmate.

The method of relieving and curing this diſorder by deligation and compreſſion ought always to be tried before that by inciſion, as well in the incipient true as in the ſpurious aneuriſm; for it would be barbarous to ſubject the patient to a cruel operation for what may be remedied by a milder treatment.

UPON entering the Club-room rather late, I found the converſation had chiefly turned upon my laſt Saturday's Paper, and that the members were

divided into parties; ſome admitting, others denying, that any very uſeful or valuable deductions could be drawn from that publication. Dr. DASH, during a deciſive pinch of ſnuff, in his uſual gay and lively manner, had drawn more than half the company to his ſide of the queſtion; and whilſt I was opening the door, lowering a little the cadence and energy of his pronunciation, was actually expreſſing apprehenſions for the honour and reputation of the Society, and with a ſmart rap was at the ſame moment cloſing both his ſentence and the lid of his ſnuff-box; when my worthy friend Dr. PLACEBO, who I found had been warm and ſtrenuous in my ſupport, ſtretching forward his hand, exclaimed: "But here comes Dr. VILLERS, let him ſpeak for himſelf."

The countenance and ſupport of Dr. PLACEBO was at once both grateful and diſtreſſing to my feelings; for no ſooner was I ſeated, than a profound ſilence took

took place; and if my reader is a diffident man, he will readily conceive the embarraſſment of my ſituation, when every eye in a ſcrutinizing glance was in a moment upon me. The laſt words of Dr. DASH, together with the ſnap of his ſnuff-box, ſtill vibrating on my ear, had thrown me ſo completely off my guard, that, betwixt my hat, my gloves, and my cane, which I had neglected to diſpoſe of in a proper manner, every moment encreaſed my confuſion. I muſt, however, do Dr. DASH, who is poſſeſſed of a natural good temper and a kind heart, the juſtice to acknowledge, that he exerted all thoſe pleaſing attentions which beſpeak the poliſhed gentleman, doubtleſs with a view to obliterate the impreſſion which it was evident he feared that he had unintentionally made. But the dye was caſt for the evening; and it was now impoſſible for me to diſburthen my mind as I had intended to the company at large, notwithſtanding I felt

myſelf full of important obſervation. But the converſation, to my great relief, beginning to take a more general turn, no ſooner was the attention of the company removed from myſelf, than the ability to ſpeak, when none were diſpoſed to liſten, ſeemed again to return.

At this juncture, Mr. HAWKSEYE in a whiſper aſſured me, that he was much pleaſed with my idea of comparing the ſkin or common integuments of an animal to the bark of a tree; and that he was convinced the common integuments were of much more conſequence, both in a general and a partial view, than he had ever imagined before. Thus encouraged, to Mr. HAWKSEYE, without embarraſſment, I communicated thoſe obſervations which I had intended for the benefit of the club, and had for a conſiderable time engaged his moſt eager attention. I was indeed in the act of tying a bleeding ligature round his arm,

arm, and aſſuring him that it would certainly do, when Dr. PLACEBO, who for ſome time had had his eye upon us, again arreſted the attention of the company, by firſt touching Dr. DASH upon the elbow (who was buſied in drawing a cork from a bottle of port), and then exclaiming, "*Pro bono publico*, Gentlemen. Dr. VILLERS puts me in mind of the bottle which Dr. DASH is at this moment decanting. We all know, that for many years it has been brim-full of moſt excellent liquor—" "And cloſely corked," replied the doctor, during a ſtrenuous exertion. "But obſerve," he continued, "with what brightneſs it ſhines now it is fairly decanted, ready to exhilarate and enliven our hearts. Mr. HAWKSEYE, if you have completely decanted our valuable friend, I hope we ſhall all be permitted to partake." "Your ſimile," Mr. HAWKSEYE replied, "is ſtrictly applicable in every ſenſe but one; the communica-

tion of Dr. VILLERS is certainly excellent, and the decanter may be filled; but the bottle is inexhauſtible.

"Dr. VILLERS, Sir," he continued, "has convinced me that a very large proportion of the vital principle reſides in the common integuments, ſo much, that, if the chief artery and nerve which lead to any particular limb ſhould be compreſſed, I begin with him to entertain doubts whether the vital influence would not be communicated as much by the common integuments and the muſcular fibres as by the anaſtomoſing branches of the blood veſſels. It is obvious, that if a partial mortification was to take place in a limb, in conſequence of ligature, upon the trunk of a large artery, the line of ſeparation would be conſiderably lower than the part compreſſed; how low, I believe, no experiments or facts have yet enabled us to determine; but we are in poſſeſſion of many facts which demonſtrate, that a ſufficient degree of circulation will

will frequently go on, even where the ligature or compreſſion has been ſuddenly applied.

" Dr. VILLERS informs me that, re-reflecting on this circumſtance, he was ſtruck with aſtoniſhment that it ſhould never yet have occurred to any ſurgeon that, by purſuing this idea, a complete cure of the poplitæal aneuriſm may in a ſhort time with certainty be obtained, without the painful neceſſity of uſing the knife. He juſtly obſerves, that the very frequently fatal termination of every operation hitherto propoſed for this deſperate malady is well known, even when performed by the moſt experienced ſurgeons. If the laſt and the moſt ingenious propoſal of Mr. Hunter ſhould have made ſuch a veteran as the late Mr. Pott tremble at, and blunder in the execution of, every other practitioner muſt liſten with attention to a propoſal that holds out a proſpect of rendering this painful and difficult operation totally uſeleſs. The late Mr.

Elſe was in poſſeſſion of an injected preparation, ſtill I believe in exiſtence in the anatomical theatre of St. Thomas's hoſpital, in which it appeared evident that the femoral artery had been rendered impervious by the preſſure of an internal tumor, and in which the vital influence had been for years conveyed by the anaſtomoſing branches, &c. In this preparation Nature hath clearly pointed out the proper ſteps to be taken. Nothing more is required than by means of partial preſſure gradually to obliterate the cavity of the femoral artery, a few inches above the aneuriſm, in that particular part where Mr. Hunter propoſes an inciſion to be made, and the artery to be tied. Should it be demanded how this partial preſſure is to be obtained, I will anſwer, by an inſtrument which Dr. VILLERS has invented for this purpoſe.

"Let a concave iron-plate, ſufficiently long to extend from the outſide of the knee to the hip, be lined particularly at

at each end with ſoft ſhammy leather, ſtuffed with cotton, ſo as to make a preſſure only on thoſe two parts, viz. the knee and the hip, where the ſubjacent blood veſſels are few and trifling. Oppoſite to the part where the partial preſſure is to be made, the iron ſhould extend in the form of a ſtout metallic inelaſtic creſcent, from one to two inches in breadth, ſufficient to embrace without preſſure three-fourths of the circumference of the thigh. In each extremity of this creſcent there ſhould be a tranſverſe eye to receive the girth of petits turnequets; which being applied, and a common cricket ball, or any other ſubſtance equally hard, being placed over the femoral artery, it is evident, that, upon turning the ſcrew, the whole of the preſſure, both action and reaction, will be divided betwixt the femoral artery and the thigh bone on one part, and the outſide of the knee and the hip on the others.

"As

" As the preſſure may be encreaſed in the moſt gradual manner, the current of blood will be imperceptibly determined to paſs by the anaſtomoſing branches, which will as gradually and as regularly enlarge. The pulſation of the aneuriſmal tumour will be a conſtant index whereby the degree of preſſure may be regulated and applied.

" The firſt day he would tighten the ſcrew ſo far only as to produce a ſenſible diminution in the force of the pulſation. After three days he would again encreaſe the compreſſion, ſo as to render the pulſation ſtill leſs perceptible; and after ten days more he would venture to give ſuch a degree of preſſure as ſhould totally obliterate every ſenſe of pulſation, and excite ſufficient pain to bring on the adheſive inflammation. A ſtrict horizontal poſture being enjoined, the patient ſhould now continue in this ſtate ten days more, when he would venture to relax the turnequet,

and

and would expect the pulsation in the aneurismal tumor to be totally gone, and the tumor itself to be considerably lessened. It is unnecessary to add a word more respecting the proper mode of managing the tumour, which must now be considered merely as a simple extravasation, and treated accordingly. The whole process would in all probability be completed in less than a month; but, should it require double or treble that time, I believe there is no man that would hesitate a moment in his choice.

"Dr. VILLERS, Gentlemen, hath invented two instruments for this important purpose; the first was simply a stout inelastic iron crescent, with transverse eyes for the girth of the turnequet, and a compress on the inside of the crescent, which of course would have acted on the outside of the thigh in opposition to the cricket ball on the inside. But here it is evident, that the whole of the compression must have taken

taken place on the two different ſides of the thigh bone, conſequently a conſiderable proportion of the anaſtomoſing branches would have been obſtructed, and, of courſe, the ſucceſs of the proceſs leſs certain. Theſe inſtruments are totally different from thoſe which have been mentioned by Heiſter, Scultetus, and Dionis, which were alſo intended to preſs upon the tumour itſelf; and by one of which Dr. Bourdelot in *the ſpace of twelve months* was cured of a falſe aneuriſm in his arm as big as a pullet's egg.

"Though Dr. VILLERS thinks the ſecond inſtrument entirely ſuperſeded by the firſt, yet he flatters himſelf that it would anſwer a very important purpoſe in amputations. He has juſt been aſſerting, that if the principal artery was compreſſed by this inſtrument a few inches above the ſtump, there would ſtill be ſufficient circulation remaining for the nouriſhment of the ſtump; nay, he hath even ventured to declare it as his

his opinion, that if a common bleeding ligature was to be drawn ſufficiently tight one or two inches above the ſtump either on the humerus or the thigh, the danger of hæmorrhage would be more certainly prevented than by the uſe of the needle and ligature, without the danger of mortification being excited; a force ſufficient to compreſs the larger blood-veſſels being conſiderably ſhort of that which is required to deſtroy the ſkin and the muſcular fibres; or, in other words, totally to prevent the propagation of the vital influence.

"Should it be objected, that in the fore arm and the leg the interoſſeal arteries could not by this means be compreſſed, the doctor ſtill mantains, that it would be time enough to apply the needle or the tenaculum when ſuch veſſels continued to bleed after a proper degree of compreſſion was made uſe of, which he thinks would not always be the caſe.

"The doctor" (continued Mr. HAWKSEYE) "hath ventured to drop one hint farther. He obſerves, that notwithſtanding the very great improvements which have been lately made in regard to the preſervation of the common integuments in amputation, yet ſuch is their retraction, that a part of the ſtump ſtill continues uncovered with ſkin till a new cicatrix is formed. He is perſuaded that if the following addition is made to the preſent mode of amputating, even this inconvenience would be obviated. Let the ſurgeon before he begins his inciſion take up the common integuments with his finger and his thumb, in the ſame manner as when he is upon the point of introducing a ſeton needle, two inches below the part where he intends to begin his firſt circular inciſion. He would wiſh this portion of the ſkin to be ſeparated by paſſing the edge of the knife under it, and, for the preſent, turning the ſkin back; then proceeding in every other

other reſpect in the method directed by Mr. Allanſon. An additional quantity of ſkin would thus be borrowed from the inferior part of the limb, which, with the aſſiſtance of preſſure from a cuſhion fixed by means of a ſtump turnequet, at a proper diſtance of time from the operation might be made to adhere, nor would it in the mean time either ſlough off or loſe the vital principle, if neatly tuck'd in before the application of the adheſive plaiſters."

The poſſibility of curing the popliteæal aneuriſm without an operation being of the utmoſt conſequence in ſurgery, the club unanimouſly agreed that the propoſal merited the moſt candid attention. While my valuable friend Dr. PLACEBO obſerved, " however difficult it may be to trace the concatenation, if theſe ideas originated in reflections on the importance of the ſkin in the animal œconomy, Dr. DASH will, I believe, be ſatisfied that the paper on that ſubject was not written in vain." " So far

am I from thinking it written in vain," replied the doctor, apparently in a very ſerious mood, "that I beg leave to propoſe a ſtill farther improvement. If a ſurgeon is *afraid* to amputate, inſtead of a bleeding ligature, I would adviſe a very ſtrong cord to be tied round the part as tight as poſſible, and thus, with a proper degree of patience, the limb will drop off itſelf." Theſe laſt words were accompanied with a look much eaſier to underſtand than accurately to deſcribe; to the ſkilful phyſiognomiſt, however, it will be ſufficient to ſay, that the *ſuſpenſor naſi* was ſlightly, but perceptibly, thrown into action; which in a moment rouſed all the generous paſſions repoſing in the breaſt of my valuable friend, Dr. PLACEBO; whoſe cheek glowing, and whoſe eye ſparkling with unuſual animation, at the ſame time graſping me by the hand and addreſſing his diſcourſe to Mr. HAWKSEYE, "The man" (he obſerved) "who feels himſelf poſſeſſed of information

eſſential

essential to the happiness and comfort of mankind, if he can rely on the soundness of his own judgement and the rectitude of his intentions, let him publish his opinions without fear or reserve; but first let him determine to be insensible to the shafts of wit, of ridicule, and of folly."

R. W.

THE

MEDICAL SPECTATOR.

NUMBER VIII.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,
Printed, by J. NICHOLS, for the AUTHOR,
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NUMBER VIII.

SATURDAY, NOVEMBER 10, 1791.

ST. MARY'S HOSPITAL MEDICAL LIBRARY MANCHESTER.

Nunc etiam fatis aperit Caſſandra futuris,
——— non unquam credita Teucris. VIRGIL.

Be thou the firſt true merit to befriend,
His praiſe is loſt who waits till all commend. POPE.

To the MEDICAL SPECTATOR.

"SIR,

"THE very favourable manner in which you have mentioned a work which appears to me to be of the utmoſt importance to the chemical, the medical,

L and

and the philoſophical world, and which, under every diſadvantage of ſtyle and arrangement, bids fair to be an honour to the age and nation in which it hath been produced, encourages me to offer you a few papers, the production of a friend, in which the merits of that work have been already conſidered, and which had the honour to be read before a very learned and reſpectable ſociety in the month of January or February 1789. I have heard that the author of this valuable work, convinced of the truth and ſoundneſs of his principles, regards the chemical philoſophers of the preſent day as labouring under a degree of infatuation. He cannot conceive how it is poſſible for them to reſiſt arguments which to him appear to be irreſiſtible. But in this he is wrong. The chemical philoſophers of the preſent age are in general men of learning, of candour and integrity, of acuteneſs and penetration; men eager for information on the ſubject of aërial philoſophy,

loſophy, on which much hath been done; but, from an unfortunate miſtake in the outſet, every new diſcovery, and every freſh experiment which they have made, hath bewildered their imaginations, and led them aſtray from the ſimple and uniform principles which he hath been ſo happy as to adopt. He cannot perhaps very readily conceive, that the volumes which, with intenſe labour and application, and no inconſiderable expence, he hath been for ten years publiſhing, hitherto remain in a great meaſure unperuſed. Where the ſubject is abſtruſe and difficult, if the ſtyle is deſtitute of the charms of elegance and arrangement, it is no wonder if the attention of the reader is fatigued, and the chain of argument, repeatedly interrupted, at laſt entirely abandoned. But, admitting that this author had written with the elegance and preciſion of his opponents, he ought ſtill to conſider that it has been the fate of every important diſcovery to contend at firſt

with the prejudices of eſtabliſhed reputation; he ought to recollect that Harvey, Newton, Franklyn, had each the mortification to ſee their reſpective important diſcoveries neglected and deſpiſed at their firſt promulgation.

" But before I proceed to ſpeak more particularly of this theory, permit me to take a conciſe view of what has been already done on the ſubject of aërial philoſophy.

" From the firſt dawn of chemical and phyſiological ſcience till the æra of Dr. Black, it was univerſally ſuppoſed that the atmoſphere afforded a *pabulum vitæ* to animals, which they took-in by reſpiration. But, about twenty-five years ſince, Dr. Black, having made ſome ſucceſsful enquiries into the nature of calcarious earth, was gradually led to that famous experiment with lime-water, which actually demonſtrated the preſence of fixed air in that which is diſcharged from the lungs by *ex*piration, and which favoured the idea that this

this fluid was ſeparated from the blood by the organs of reſpiration. Hence was naturally ſuggeſted the opinion that the atmoſphere, inſtead of communicating a vital principle to the blood in the lungs, was neceſſary for the purpoſe of ventilating and carrying off a poiſonous and deleterious vapour. I believe there are few of his pupils who did not at that time immediately adopt this opinion.

" It was about this period that Dr. Prieſtley began to be eminent as a chemical philoſopher. Poſſeſſed of a quick conception and a ready pen, the Doctor caught at this new idea, and, being at the ſame time ſtruck with the WELL KNOWN analogy ſubſiſting betwixt animal life and flame, with wonderful *eclat* made an irruption into the ſcience of chemiſtry, and, like a ſplendid meteor, hath attracted the notice of every modern philoſopher of Europe. But, at the ſame time that he hath gained their admiration and applauſe, he hath led

them aſtray from a knowledge of the true ſyſtem of the formation of the atmoſphere. He hath, however, furniſhed them with many new and curious facts. His experiments have been conducted with ſpirit, and related with accuracy, and his progreſs hath been rapid; but whether it may have been owing to the multifarious ſubjects on which his attention hath been engaged, or to the original want of a ſyſtematical education in the departments which more immediately relate to the ſcience of chemiſtry and the animal œconomy, he hath certainly failed to elucidate the grand objects of his enquiry. Indeed, in almoſt every inſtance it will appear, that his deductions either are, or have been, at variance with thoſe very experiments of which he has the honour to be the undiſputed author. Yet, ſtill it muſt be allowed, notwithſtanding the fallacy of his deductions, that his name will continue to rank high in the liſt of aërial philoſophers. He will ſtill be entitled

entitled to that praiſe which the writer, who hath ſo ſucceſsfully combated his theories and opinions, in the moſt liberal manner beſtows; he muſt ſtill be allowed to be "the firſt chemical and "philoſophical *experimenter* of the "age."—But here the eulogium ceaſes; for, as a chemical reaſoner, he will certainly be found extremely defective; or, at beſt, poſſeſſed of abilities which are calculated only to puzzle and miſlead.

"At the time that Dr. Prieſtley had nearly arrived at the zenith of his reputation as an aërial philoſopher, Dr. Harrington, then a pupil of Dr. Black, a youth poſſeſſed of a mind capable of conceiving, but not of clearly or happily deſcribing, the moſt abſtruſe doctrines of chemiſtry, with an ardour and ſucceſs bordering upon intuition, immediately diſcovered the erroneous concluſions to which Dr. Black's experiment was leading; but at the ſame time adopting, and giving conſiſtence to, his doctrine of *latent heat*, which ſtands

on a firmer foundation, had the happineſs to carry his views from a ſolitary fact to an explanation of the grand operations of Nature in the formation of the atmoſphere, and its relative connexion with animal and vegetable life, and the combuſtion of inflammable ſubſtances. He had, however, the misfortune not to write in general in a ſtyle equal to the comprehenſion, or worthy of the vaſt objects which his mind was graſping: and having the inconvenience from the firſt to contend with the moſt eſtabliſhed names, and with theories univerſally adopted, which it was neceſſary for him to deſtroy at the ſame time that he was building his own, no wonder if the reader often finds his meaning obſcure, or if we perceive him at every ſtep embarraſſed with the erroneous and faſhionable doctrines of his contemporaries. Almoſt every paragraph contains inſtances of this perplexity; but the obſcurity frequently ariſes from the reader not being aware

aware of the different meaning annexed to the names of the different aërial fluids which he has occaſion to mention. Thus, Dr. Prieſtley, and they who follow him in this new track, have given the denomination of dephlogiſticated air to that which Dr. Harrington proves to conſiſt chiefly of phlogiſton; and on the contrary, they have given the name of phlogiſticated air to that which he demonſtrates to be nearly deprived of it. When theſe erroneous denominations are generally known, a conſiderable ſource of perplexity will be removed.

"In the year 1781, Dr. Harrington publiſhed his firſt philoſophical volume, in which he proves that the pureſt atmoſpherical air is a *compound* body, formed of concentrated *fire*, *fixed air*, or *the aërial mephitic acid*, and *water*. Nor is it neceſſary here to mention how much this idea was then reprobated. This volume was followed by a ſecond in 1785, in which he ſhews that *water* is a *conſtituent* part of every

ſpecies

ſpecies of air. A third volume was added on the 10th of March, 1788, under the form of a letter to Dr. Prieſtley, Meſſrs. Cavendiſh, Lavoiſier, and Kirwan; expreſſly written to point out the erroneous opinions which theſe eminent aërial philoſophers had adopted, viz. that *water* was *compoſed* of inflammable and dephlogiſticated airs. I am ſorry to add, Sir, that in many of theſe inſtances his concluſions have been adopted while the mention of his name has been baſely and ungenerouſly neglected. The following quotations, which conſtitute a very ſmall part only of what might be adduced upon this occaſion, will abundantly teſtify the truth of my aſſertions.

"That a conſiderable quantity of "*water* enters into the compoſition of "dephlogiſticated air will not be thought "improbable, when it is conſidered that, "in my former experiments, this ap-"peared to be the caſe with reſpect to "*inflammable air*. For without water

"this

" this air cannot be procured. I can
" alſo now ſay, that the ſame is the
" caſe with reſpect to *fixed air*. It is
" not therefore improbable, that the
" ſame may be true of every other kind
" of air, ſince *water* is uſed in the pro-
" duction of them all." Vide Dr. Prieſt-
ley's " Obſervations and Experiments
on Acidity, the Compoſition of Water
and Phlogiſton," Phil. Tranſ. Vol.
LXXVIII. for 1788, p. 152.

" I muſt obſerve that the *ſuppoſition*
" of water entering into the conſtitu-
" tion of all kinds of air, and being as
" it were their proper baſis, that with-
" out which no aëriform ſubſtance can
" ſubſiſt (which the preceding experi-
" ments render in a high degree proba-
" ble), makes it unneceſſary to ſuppoſe,
" as myſelf as well as others have done,
" that water conſiſts of dephlogiſticated
" air and inflammable air, or that it
" has ever been either compoſed or de-
" compoſed in any of our proceſſes."
Ibid. p. 154.

 " The

" The *diſcovery* that the greateſt part " of the weight of inflammable air, as " well as of other kinds of air, is water, " does not make the uſe of the term phlo- " giſton leſs proper, &c." Ibid. p. 156.

Theſe again are thus echoed back in the Monthly Review, for October 1788, p. 327.

" By repeating in *a more accurate* " *manner* the experiment of the com- " buſtion of the two airs, with due pre- " cautions to previouſly ſeparate from " them as much as poſſible all extra- " neous moiſture, Dr. P. has *now* found, " that the weight of the water falls " always far ſhort of the weight of the " air decompoſed, and inſtead of air " being a component part of water, HE " *has made it probable* that *water is a* " *component part of air*. It is already " known that inflammable air cannot " be produced without water; and the " Doctor ſhews, by ſeveral experiments, " that the caſe is the ſame with reſpect " to *fixed air*; the aërated *terra ponde-*

" *roſa*,

" *roſa*, which appears to have no water " in its compoſition, yields no fixed air " till water is introduced; and 43 or " 44 grains of the water are always " expended in the production of 100 " grains of air; ſo that of this air " water makes near one-half. It is " probable that the ſame thing obtains " in every other kind of air, ſince water " is employed in the production of them " all; that pure water is their proper " baſis, or the ſubſtance without which " no aëriform ſubſtance can ſubſiſt; " and therefore that water has never " been compoſed or decompoſed in any " of our operations." Again.

" This Paper" (viz. Dr. Auſtin's, on the formation of the Volatile Alkali) " was read to the Society in May, 1787, " when the doctrine of the decompo- " ſition of water was in vogue; but we " ſuppoſe the author will now permit " us to differ from him in that reſpect, " and to aſcribe the origin of the in- " flammable air, if any was really pro- " duced,

" duced, to the phlogiſton of the " metal." Ibid.

" Theſe will be ſufficient to ſhew that Dr. Harrington's theory, ſo far as it relates to *water* being a *conſtituent* part of air, has *now* the honour to be ſupported and confirmed by the moſt ſatisfactory authorities; and one more quotation will alſo ſhew that he hath been equally happy in reſpect to *another* of the conſtituent parts of air.

" According to my lateſt obſervations, " *water*, or rather *vapour*, is the baſis " of all kinds of air, or that to which " they owe their peculiar kind of *elaſti-* " *city*; ſo that all kinds of air may be " ſaid to be vapour, with *ſomething elſe* " ſo attached to it, as to prevent its " condenſation in the temperature of " the atmoſphere.

" The action of the *electric ſpark* " upon different kinds of air, is not " eaſily explained. As a permanent in- " flammable air is formed by it from " any kind of oil, or cauſtic volatile al-

" kali,

" kali, it muſt be capable of giving this " aërial form to the *water* and *phlogiſton* " contained in thoſe liquors; but as a " red heat will do the ſame thing, this " effect may be produced by means of " the mere *heat* communicated by the " ſpark. And *ſomething communicated* " *by heat* SEEMS *to enter as a conſtituent* " *principle* into every ſpecies of air, be- " cauſe the water in the worm-tub is " not heated when air is produced from " the vapor of acids. *The element of* " *heat therefore, called by Dr. Black* LA- " TENT HEAT, *extremely obſcure as the* " *ſubject is,* SEEMS *to enter into the com-* " *poſition of all kinds of air.*" Dr. Prieſtley's Exp. and Obſerv. 3 Vol. 1790, vide Analytical Rev. Dec. 1790.

" And thus in theſe reluctant expreſ- ſions it would SEEM that Dr. Prieſtley hath at laſt condeſcended *ſlyly* to adopt a conſiderablepart of the ground-work of the Harringtonian theory of the form- ation of the atmoſphere. A theory which renders nugatory and void almoſt the whole

whole of thoſe celebrated aërial vagaries, with which, it will hereafter be found, he hath ſo long, and to ſo little purpoſe, *confounded* the ſcience of chemiſtry. I preſume therefore, that you, Sir, who profeſs yourſelf to be a Chemical, as well as a Medical, Spectator, will permit me, through the medium of your publication, to lay before your readers a ſhort enquiry into the merits of that philoſophy which is a ſuperſtructure erected on the firm and incontrovertible baſis of Stahl's beautiful theory of phlogiſton. A ſyſtem of philoſophy which, ſo far from ſhrinking at the fiery teſt of experiment, has been uniformly ſupported and confirmed by every experiment which our moſt celebrated aërial philoſophers, ſince its firſt promulgation, have been able to deviſe; and to which Dr. Harrington himſelf, through the whole of his progreſs, with the greateſt candor and liberality regularly appeals. While their own vague and mutable opinions, like the fabrications erected by children

children with cards on a ſmooth and ſlippery ſurface, are perpetually tumbling at the ſhock of every new operation. In ſhort, our aërial philoſophers, for the laſt 15 or 20 years, may not unaptly be compared to a ſet of nine-pins overturning each other; and it may with the ſtricteſt propriety be aſſerted, in the words of a well-informed aërial philoſopher of the laſt century, viz. Mayow de Sal. Nitro, p. 2,

"Veritas ſcriptorum multitudine planè "obrui videtur."

How far the papers which I am permitted to lay before you may tend to ſettle theſe jarring opinions, and to recall our philoſophers from their preſent aërial flights to the *old* and neglected principles of chemiſtry, and to a ſenſe of the importance of that theory which hath been repeatedly offered to their attention by its inſulted author, perhaps I may appear too warmly intereſted to determine. With your permiſſion, therefore, they ſhall be left to the future conſideration

of your readers, if you, Sir, will do me the honor to incorporate the papers which I have tranſmitted to you with the MEDICAL SPECTATOR, for which publication, I flatter myſelf, they have been fortunately reſerved.

" I am, Sir, &c. W. S."

*** Our Correſpondent will perceive, by the early publication of his letter, that we conſider ſuch of the communications as we have already received through his hands, to be of importance; and we have only to requeſt that in the additional papers which have been promiſed, the writer will endeavour to be as conciſe as poſſible, becauſe, however important the ſubject, or however well it may be treated, many of our readers may be but little entertained with the abſtruſe doctrines of Chemiſtry.

THE

MEDICAL SPECTATOR.

NUMBER IX.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,
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MDCCXCI.

THE MEDICAL SPECTATOR.

NUMBER IX.

SATURDAY, NOVEMBER 26, 1791.

Καί τότ' Ὀδυσσεὺς ὦρτο πόλινδ' ἴμεν, ἀμφὶ δ' Ἀθήνη
Πολλὴν ἠέρα χεῦε φίλα φρονέουσ' Ὀδυσσῆϊ
Μή τις ἰάτρων * μεγαθύμων ἀνιβολήσας
Κερτομέοι τ' ἐπέεσσι, καὶ ἐξερέοιθ' ὅτις εἴη. HOMER.

And then, behold; the wily hero roſe
And ſtrait toward the crowded city goes;
But prudence firſt a cloud umbrageous ſpread,
And, wrapt in darkneſs, veils his honour'd head:
Leſt ſome high-minded great phyſician ſee,
And rudely thus exclaim—Pray, who is he?

THE anxiety of an author for the reception of a favourite publica-

* Ἰάτρων μεγαθύμων. Euſtathius, and all the beſt commentators down to our learned Bentley, agree in reading φαίηκων μεγαθύμων. But the ſenſe of this whole paſſage will point out the propriety, and indeed the abſolute neceſſity, for the *reſtoration* which, *meo periculo*, I have here ventured to adopt.

M cation

tion is well known. From the moment that his work appears, he conceives every eye directed towards him, every tongue to dwell upon his name, and every ear to be fatigued with reiterated cenſure or applauſe. Nor is he rouſed from this idle dream till, diſcovering all the world intent upon their own affairs, like the man who told a ſtory of a gun, he finds himſelf under the humiliating neceſſity in every company either of introducing the ſubject himſelf, or of ſuffering the darling progeny of his brain, without a ſingle eulogium, to drop dead-born from the preſs, and to ſink into oblivion.

Such is often the ſituation of him who boldly ventures to give his name to the publick; but he who ſolicits applauſe under a fictitious character, although perhaps equally ſenſible to the mortifications of neglect and the gratulations of praiſe, has a wider range; it is in his power, under the cover of an aſſumed character, to enjoy as it were

were by anticipation that celebrity which it is in his power, whenever he pleaſes, openly to appropriate, or ſilently to ſhrink from the odium of publick contempt.

The writer of a periodical paper generally adopts the more ſecure mode of carrying his point; and, as the ſucceſs of his efforts very much depends on the ſecrecy with which his labours are conducted, it is not extraordinary if he ſhould feel an uncommon degree of anxiety in this reſpect. I remember, when I was laying my publiſher under the ſtricteſt injunctions of ſecrecy, he ſmiled, and in a very dry manner aſſured me, that I need be under no apprehenſions of being detected. He was indeed of the ſame opinion as a very ingenious reviewer, viz. "that the period of the "ſucceſsful eſſayiſt is at an end." He enlarged upon the confidential nature of his office, and was firmly of opinion, that the publick would never think it an object worthy of enquiry. "Hence,"

he continued, "the various artiſts through whoſe hands it muſt paſs, from the firſt conception to the moment of delivery, can have no motive whatever to betray their truſt. The devil is intent only on blackening his types, the compoſitor on the accuracy and correctneſs of their diſpoſition, and every other individual in his particular occupation. But there is one perſon," he obſerved, "who from the nature of the caſe muſt inevitably be entruſted with the ſecret, and whoſe ſilence the bookſeller almoſt always finds it impoſſible to ſecure." Upon my aſking his name, and the particular department which he filled, Mr. Pridden very laconically replied, "The perſon whom I mean, Dr. Villers, is the author himſelf."

Although I am far from believing that the ſale of a publication is always to be regarded as a criterion of its merit, yet a very briſk ſale muſt undoubtedly in general be deemed a proof of publick attention. My readers, therefore, will not

not be ſurpriſed when I inform them that I have been for a conſiderable time extremely anxious to know how far my labours have been rewarded with this mark of their approbation. But Mr. Pridden's rebuke hath hitherto kept me at a diſtance; nor would I have dared to diſcover the parental ſolicitude, had it not been for the following unfortunate accident which I am about to relate.

After walking repeatedly paſt Mr. Pridden's ſhop, without daring to enter, it occurred to me that, under the cover of diſguiſe, it would be very poſſible for me, as a purchaſer of my own work, not only to gratify my curioſity, but, by an entire new ſpecies of puff, to give an apparent fillip to the ſale. No ſooner was this little ſcheme conceived than it was reduced to practice; and, under the favourable duſk of the evening, which was faſt approaching, ſtripping off my full-trimmed ſuit of black, and mounting much gayer habiliments,

together with a ſmartly-cocked hat and a full-bottomed wig, which in the latter end of the reign of George the Second was deemed a very ſagacious one, I ventured in complete diſguiſe to call at the ſhop of my bookſeller, and was happy to find not Mr. PRIDDEN himſelf, but his better half at home. "You have got, Madam," ſaid I, "a thing called the MEDICAL SPECTATOR; I have an order from the country for a dozen complete copies." "A thing! Sir," ſaid Mrs. PRIDDEN, "we have got a very excellent periodical paper, *entitled*, The MEDICAL SPECTATOR; but I am not quite certain, Sir, whether we can ſpare you ſo large a number till a new edition is printed." Bravo, thought I; if this is not an apparent *fillip* alſo, it will do. It was decent, however, to add, "I am glad to hear, Madam, that the author keeps up the reputation of his work ſo well." "As to that, Sir," the lady replied, "I find there are ſome doubts. Dr. BLIGHT, and the Reverend Mr. PICK-

THANK,

THANK, have both been here, and they ſpeak, I aſſure you, very ſlightingly of the performance; for my own part, Sir, I believe it ariſes entirely from ſpite and envy at the rapidity of the ſale. Mr. PICKTHANK declares the firſt number contains nothing at all; the ſecond he allows had ſome ſmall pretenſions to humour. "But then the *cui bono*, Dr. BLIGHT—" "*Cui bono!*" ſaid the Doctor, "find that out if you can; but the humour, Mr. PICKTHANK, is at beſt but an echo of the LOUNGER." "And a very poor echo indeed," replied Mr. PICKTHANK. As to the third number, the laſt mentioned gentleman ſeemed ready to acknowledge that it contained ſome little utility as well as originality; there was, however, a qualifying *but* at the tip of his tongue; when Dr. BLIGHT, pulling a ragged old Latin book out of his pocket, cut him ſhort in a moment. "Look here, Mr. PICKTHANK," pointing to a particular paſſage, "where is your originality now?

Read,

Read, read, Sir; you will find it has not even the merit of a good tranſlation." "But here, Sir," ſaid Mrs. Pridden, "is the book itſelf, which the Doctor I ſuppoſe has left behind him for the benefit of the publick."

Agreeable to the cuſtom of our beſt hiſtorians, I ſhall give the paſſage, to which Mrs. Pridden referred, in a note*,

* *Qua ratione ambiens aër corpora mutet, et cauſas interiores morboſque excitet.*

De Morborum Cauſis, Lib I. Cap. xiii.

"Serenus tenuis, purus, beneque temperatus, ſpiritus noſtros colluſtrat, ſanguinem attenuat, cor exhilarat, mentem ſerenat; corpus omne pervadens raritate diffundit, ſuſcitatoque calore appetentiam, concoctionem, ſupervacuorum diſſolutionem expurgationemque procurat. Craſſus, denſus, caliginoſus, et aliena permiſtione inquinatus ſpiritus obſcurat, ſanguinem et humores denſat atque labefactat, cor mœſtitia perſtringit, mentem obumbrat, corpus degravat atque denſat: et oppreſſo atque debilitato nativo calore concoctionem laedit, ſupervacuorumque diſſolutionem cohibet. Qui porro circumfuſus eſt nobis aër, in intima quæque penetrans contagione nos etiam immutat: neque nos ſolum verum etiam ſolidiſſima quæque et inanima, ut ligna, ut lapides et metalla, quæ aliter ſicco aliter pluvioſo cœlo affici notamus. Tanta quidem vis eſt aeris per cuncta meabilis. Hujus autem quam cæterorum vis major et efficacior ad morbos infligendos, et plures temporum tempeſtatumque mutatione aut ex ſalubri loco in gravem tranſitu aut ex ortu intemperie aut quibuſvis aëris inquinamentis, quam victus mutatione morbis pulſantur."

that I may not interrupt the regularity of my narrative.

My readers will eaſily believe that an attack of this nature was more than fleſh and blood could eaſily ſupport. I was in a moment completely off my guard, when, throwing down my hat, pulling out my ſpectacles, and drawing the candle towards me, regardleſs of the cloud under which I was inveloped, in the vehemence and hurry of the action, I had the misfortune to ſet my wig on fire.

——————— cum circumfuſa repente
Scindit ſe nubes, et in æthera purgat apertum.
Reſtitit Æneas, claraque in luce refulſit..

VIRGIL.

In general flames th' o'erſhading curls conſpire,
And vaniſh in the pure ethereal fire.
Aghaſt the hero ſtands, expos'd to fight,
And ſhines conſpicuous in a blaze of light.

ANON.

"Good heavens, Dr. VILLERS!" exclaimed Mrs. PRIDDEN: "is it you?" "Huſh, huſh, my dear Mrs. PRIDDEN! Huſh," I replied, in the act of diſengaging myſelf from the leſs combuſtible parts of my

my wig. "I was juſt going on a little private maſquerade party, and thought I would ſtep in on my way." "Maſquerade, indeed, Dr. VILLERS! You might have robbed, ruined, and murdered me. I ſhould never have been able to have told that it was you. But I am happy to ſee you, notwithſtanding this little accident, and have the pleaſure to inform you, that the faculty read nothing but the Medical Spectator; even the druggiſts are ſending for it every day by wholeſale, for their country cuſtomers; and the young gentlemen from the different hoſpitals are perpetually calling, but they prefer the funny papers; they are your beſt friends, Dr. VILLERS; if you wiſh to keep up their attention, you ſhould always write funny papers." "That is not perfectly clear, Mrs. PRIDDEN; I know the young rogues love fun dearly; I remember the time when I loved fun myſelf as well as the beſt of them; but, in their ſerious moments, I am certain, they have

have a proper reliſh for good ſenſe and ſound philoſophy; we muſt, therefore, blend them together." "You are the beſt judge, Dr. VILLERS; but I think I can gueſs pretty well which papers will give the greateſt ſatisfaction. I read them all myſelf as ſoon as they are printed; and was delighted with the ſecond. But how could you think, Dr. VILLERS, of paſſing ſentence of tranſportation on ſo ſweet a lady? Miſs DY-SOON, to be ſure, is a charming creature; ſhe has been here theſe two hours, and is but this moment gone." "Creature! Madam? Why ſhe is a mere creature of the brain, a creature of my own imagination." "No, no, no, Dr. VILLERS; that will never do; I know better; ſhe is charmed with the character of Dr. PLACEBO, and intends to conſult him before ſhe embarks. She has left a card alſo for Mr. HAWKS-EYE, having been afflicted, in conſequence of a ſevere cold which ſhe caught during the late foggy weather, with

with 119 diſeaſes in her left eye only." "Impoſſible, Mrs. PRIDDEN; that is one more than the full complement. The wiſeſt, the moſt learned head, and the keeneſt eye in the college, never yet pretended to have ſeen more than 118; and that is allowed by all the faculty to be a large number." "Oh! Sir," continued Mrs. PRIDDEN, indulging in a hearty fit of laughter, "there is nothing in the world the matter with them, for I never ſaw a more beautiful pair of eyes in my life." "Though *you* have not been able to ſee it, Mrs. PRIDDEN, *I* can aſſure you there is a great deal of miſchief in thoſe eyes." The ſlighteſt hint which relates to the tender paſſions never eſcapes the obſervation of a lady. Mrs. PRIDDEN, who has a remarkably fine eye herſelf, in a moment ſaw through the alluſion, and with much pleaſantry and good humour kept it up as follows. "I fancy, Dr. VILLERS, the miſchief which you mean is not to be looked for in the eye itſelf.

I ſhould

I ſhould rather apprehend the eye to be the cauſe of miſchief, which will probably be found in a very different quarter. Upon my life, Dr. VILLERS, I ſuſpect the miſchief is in your own heart, and that you are actually in love with Miſs DY-SOON." I concluded this little ſcene of *badinage* by confeſſing to Mrs. PRIDDEN, that I was indeed partial to the character of Mrs. DY-SOON; and faithfully promiſed, upon condition that ſhe would prevail upon the young gentlemen of the different hoſpitals to peruſe the philoſophical papers, which I am bound in honour to publiſh, that, in the very firſt number of the ſecond volume, I would introduce them again to Mrs. DY-SOON.

N. H.

*** An ingenious and, apparently, very friendly correſpondent, under the ſignature of *Detector*, objects to the mode of cure propoſed in the MEDICAL SPECTATOR

SPECTATOR for Aneuriſm, and ſeems to think that the inſtrument is not new. The author of that paper conceives not only the inſtrument, but the mode of cure, and the whole of the reaſoning upon which it is founded, to be *abſolutely new*. An extract, therefore, from *Platner*, or any other author, or the work itſelf, will be very acceptable, and with candour communicated to the publick through the medium of this work. But, if by *preſſure* the writer means preſſure upon the aneuriſmal tumour, he may ſpare himſelf the trouble, becauſe, to uſe the language of the ſenate, it would be totally *irrelevant*.

THE

MEDICAL SPECTATOR.

ST MARY'S HOSPITAL
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NUMBER

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

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MDCCXCI.

THE MEDICAL SPECTATOR.

NUMBER X.

SATURDAY, DECEMBER 3, 1791.

Jam nova progenies cœlo dimittitur alto. VIRGIL.

"Novel opinions, whether in ethics or phyſics, have a thouſand difficulties to combat, and none more formidable than prejudice. It is for this reaſon that I hope the reader will for a time loſe ſight of his own opinion, and conſider and view things in the light I have put them, without rejecting what is advanced, merely becauſe it is not the ſame, or may perhaps contradict what he before believed." LESLIE on Animal Heat, p. 165.

THE author of a medical paper, which was publiſhed about three or four years ſince, having aſſerted, in rather too confident a manner, that he believes with Dr. Harrington, in oppoſition to the idea of Dr. Prieſtley, that

the blood *receives* latent heat or phlogiſton from the air during its paſſage through the lungs, and that there are many phenomena which contradict the opinion of Dr. Prieſtley, that the office of the lungs is to *diſcharge* the phlogiſton of the blood, hath drawn upon himſelf the cenſure of ſome very reſpectable critics, who aſſert, "that they "know of no phenomena which con- "tradict Dr. Prieſtley's *beautiful* theory "of reſpiration," and, "that ſuch phe- "nomena he hath not enumerated." When he ventured to make that aſſertion, it is more than probable he thought Dr. Harrington's theory of reſpiration had been better known. It is now a good many years ſince that gentleman hath ſhewn, that atmoſpherical air is formed of *fire*, *fixed air*, or the *aërial mephitic acid*, and *water*; and that animal heat, ſanguification, moiſture, and many others of the phenomena of animal life, are immediately connected with reſpiration. It is a plain, ſimple,

ſimple, juſtly-connected ſyſtem, greatly ſuperior to the theories which are at preſent ſo generally received. Indeed, thoſe very experiments which gave riſe to that monſtrous idea, that water is formed of inflammable and dephlogiſticated airs, are evident *proofs* of the truth of Dr. Harrington's general theory of the atmoſphere. And it will doubtleſs afford that gentleman much ſatisfaction to find that the very eminent chemical philoſophers, who firſt adopted that aſtoniſhing concluſion, have now *diſcovered* its fallacy; becauſe the diſcovery will be of the utmoſt conſequence to ſcience, and particularly to medicine, ſince the enquiry hath for its object an inveſtigation of the reaſon why animal life cannot ſubſiſt without a continued application of freſh air, or, in other words, whether we are to believe with the antients that the neceſſity for freſh air depends upon the atmoſphere communicating A VITAL PRINCIPLE TO the

blood in the lungs, or, adopting the ingenious novelties of the preſent age, that it acts by extracting A DEADLY POISON FROM THEM. Since Dr. Harrington's theory was firſt publiſhed, another opinion ſeems to have been almoſt univerſally adopted, viz. that the atmoſphere conſiſts of two airs, *phlogiſticated* and *dephlogiſticated*, the latter of which is ſuppoſed to be received into the blood as a vital principle. But, in the courſe of this enquiry, we hope to place this matter in a very different point of view. But perhaps the moſt effectual way to comprehend this matter clearly will be by taking

A GENERAL VIEW OF THE DISTRIBUTION OF HEAT THROUGH THE DIFFERENT OBJECTS OF NATURE.

There is no property of heat more generally known, or perhaps better underſtood

underſtood, than its diſpoſition to paſs from one body to another, ſo as to preſerve what hath been called an equilibrium. But it is in the exceptions to this general law that we are to look for information in the preſent æra of philoſophy. For there are exceptions, and perhaps none more ſtriking than thoſe which take place in the animal and the vegetable creations. The full-grown fœtus, when brought into the world in the midſt of a Greenland winter, immediately inhales air into its lungs, which, "according to the common ac-"tion of hot and cold bodies upon "one another, would in a few mi-"nutes reduce it to a frozen lump." Yet, for ſome hours, it continues to breathe the ſame air, whilſt its temperature of heat is conſiderably increaſing.

On the contrary, in the vegetable creation we may obſerve a cucumber, hours, days, and weeks, expoſed to a

ſurrounding heat often little ſhort of 100 degrees of Fahrenheit's thermometer, yet ſenſibly cold both to our touch and taſte, and capable of reducing the mercury in the ſame thermometer to leſs than 65 degrees, upon the bulb being plunged into its ſubſtance. The cucumber continues this refrigerating power till it becomes ripe and ſoft, when, the vegetating proceſs ceaſing, it acquires the ſame degree of heat with the bodies by which it is ſurrounded. It retains in a leſſer degree the ſame refrigerating power even after it is ſeparated from the ſtalk on which it grew, for, if it is left in the hot-bed, it will ſtill continue colder than the ſurrounding bodies; but, if a thermometer is plunged into its ſubſtance twenty-four hours after it has lain thus ſeparated from the ſtalk, the mercury will riſe ſome degrees higher than in the growing cucumber; which clearly ſhews that the vegetating proceſs, and of courſe the refrigerating power

power, are beginning gradually to diminiſh.

Theſe are facts which merit attention. The former will be beſt explained when we come to treat of the production of animal heat; at preſent I will confine myſelf to the refrigerating power of the vegetable when ſeated in a hot-bed.

Chemical philoſophers have now pretty generally ceaſed to conſider heat as a quality; they have begun to call it the *matter of heat*. Dr. Robert Harrington, ſo long ſince as the year 1781, has not only conſidered it in this light, but hath ſuggeſted that, like other objects of chemiſtry, it has its affinities and elective attractions. May we not venture then, with the late Dr. Franklin, to aſſert that, during the gradual increaſe of this vegetable, it is conſtantly imbibing the ſurrounding heat, which, combining with the moiſture that it is extracting from the earth, contributes to the formation of the ſolid ſubſtance?

We are certain that it lives, and rapidly encreaſes; and we alſo know, from the general property of heat in diffuſing itſelf, that it muſt have entered the ſubſtance of the vegetable, where it is abſorbed and apparently loſt. But it is not ſatisfactory to ſay that the heat remains merely in a dormant or *latent* ſtate; may we not go one ſtep further, and alledge, that it is abſolutely *neutraliſed*, and, like a burning mineral acid, or a cauſtic alkali, in the act of neutraliſation, forms with another ſubſtance a mild cooling compound; more eſpecially when we know that, by a further proceſs, it may be again called forth in a new ſource of heat and light, upon its being reſolved into its original principles by the act of combuſtion?

We have further reaſon for ſuſpecting ſomething *material* in heat, from its never-failing effect of encreaſing the bulk of every ſubſtance into which it enters in its ſenſible uncombined form,

as

as is evident in the whole phenomena of expanſion.

We have a further exception to the general diffuſion of heat in ice, which no art can warm one degree above the freezing-point, and into the ſubſtance of which we are well aſſured no additional heat can penetrate, for, upon its application, the ſolid ſubſtance acquires a new form.

It is not my intention here to enter into the doctrine of fluidity, as depending not only on heat, but on the preſence of latent heat. That doctrine has now been more than twenty years publicly taught by a celebrated profeſſor of chemiſtry at Edinburgh, and has of late years I believe conſiderably gained ground. When ice is rendered fluid, it again affords another inſtance of an exception to the general diffuſion of heat; for, under the common preſſure of the atmoſphere, no art can enable pure water to retain a greater degree of heat than 212 of Fahrenheit. It again

rapidly

rapidly takes a new form, and we ſhall trace it in

THE ELEVATION OF VAPOUR.

Dr. Black hath ſatisfactorily ſhewn, that an immenſe quantity of heat is abſorbed and converted into a latent ſtate in the act of evaporation; and there is no doubt but the aſcent of vapour, in every inſtance, depends upon the abſorption of heat. Even gold, which is the heavieſt body in nature, by the intenſe heat of a burning glaſs, has been ſo far expanded as to riſe in vapour into the atmoſphere, and, whilſt it exiſts in that ſtate, fixes the active power of heat ſo that it neither ſhews itſelf to the ſenſes nor to the thermometer; but no ſooner is it let looſe by the condenſation of the gold than it ſhews itſelf by all its active properties. In its combination with water, an opaque vapour is formed, from which, in the refri-

The combination of heat with water

refrigeratory of a common ſtill, the heat is again ſeparated, and the vapour returns to its original form of water. Dr. Harrington juſtly obſerves, that Dr. Black, who hath eſtabliſhed this important idea of the converſion of ſenſible heat into latent in the act of evaporation, hath neglected to purſue it through the great operations of nature; perhaps unaware of the ſuperſtructure which his doctrine is capable of ſupporting. Had no cooling powers been applied in the act of diſtillation, the vapour would have diffuſed itſelf into the open air, and a ſmall part only would have been condenſed, by much the greateſt part would have paſſed into a ſtate of tranſparent ſolution, and, uniting with the general atmoſphere, muſt have been ſubject to the general changes to which that body is liable.

May we not then venture to conclude, that water, thus combined with heat into a tranſparent ſolution, actually becomes a principal conſtituent part of air?

air? Perhaps, if we conſider the whole ſurrounding atmoſphere in this light, we may be able to ſolve many difficulties which have hitherto been found inexplicable. It is on this ground that I venture to treat of

THE FORMATION, DESTRUCTION, AND RENOVATION, OF THE ATMOSPHERE.

"It is a well-known fact, that a drop
"of water placed on the heated bottom
"of an exhauſted receiver will ſuddenly
"diſappear, and be converted into a
"ſubtle and tranſparent vapour, which
"will fill the veſſel; and its preſſure
"againſt the internal ſurface will be ſo
"ſtrong, when heated to a certain de-
"gree, that it will be almoſt impoſſible
"to confine it, and it will often burſt
"the veſſel with an exploſion; which
"is ſufficiently exemplified in the ſmall
"machines called candle-balls."

Dr. Black's Lectures, 1767.

I once

I once thought, and believe I was not ſingular in my opinion, that it would be poſſible to ſubtiliſe this vapour, ſo as to render it compleat air; but a due attention to the arguments of Dr. Harrington, in every part of his works, will ſhew that all attempts of this kind muſt be abortive; for though *heat* and *water*, according to his theory, are two of the conſtituent parts of atmoſpherical air, yet theſe, when combined in vapour, are not ſufficient for the production of that fluid. A third body, viz. the *aërial mephitic acid*, is wanting, with which the *heat* is actually neutralized or concentrated, in the ſame manner as it is *known to be* in its combination with the vitriolic acid in ſulphur*; and not merely as *latent* heat, in the manner taught by Dr. Black on the ſubjects of fluidity and vapour.

As we never find the atmoſphere without ſome proportion of fixed air, this latter Dr. Harrington hath proved to be an eſſential part of its compoſition, and not merely an adventitious mixture. But it is not neceſſary at preſent to enter into a diſcuſſion of this ſubject. It will be granted that water, chemically com-

* The combination of phlogiſton with the vitriolic acid in ſulphur, although at preſent a controverted ſubject among modern philoſophers, is here alluded to as an old eſtabliſhed chemical fact, which muſt be again acknowledged whenever Dr. Harrington's theory is received.

bined

bined with heat, will form an elaſtic vapour. We ſee this every day take place in the open air on every part of the terraqueous globe. In a few days immenſe quantities of water are raiſed by heat, in conſequence of which the atmoſphere itſelf is often greatly encreaſed; which is demonſtrated by the gradual riſe of the mercury in the barometer. A greater ſuperincumbent atmoſphere muſt of neceſſity preſs with additional weight on the mercury, and force it upwards. But as ſoon as a decompoſition begins to take place, the atmoſphere as gradually leſſens in quantity, and the mercury falls in proportion, thus alternately ſhewing every change that takes place with as much delicacy and truth as the niceſt balance. For though we do not always experience rain or fair weather according to the expreſs indications of the barometer, yet there can be no doubt but that its riſing or falling in every inſtance depends

pends upon changes having taken place in the extent of the atmoſphere. It may often happen that a conſiderable decompoſition may be taking place, the mercury may ſink, and the appearance of the ſky may be ſuch as to promiſe rain; but by degrees the ſun again overpowers or neutraliſes the moiſture, and we are diſappointed, notwithſtanding that the ſtate of the atmoſphere has been accurately pointed out by the barometer.

Nor is it any objection to this idea, that rain will fall when the mercury is riſing. The general ſtate or balance of the atmoſphere is all that the mercury can point out. A partial cloud may depoſit a conſiderable ſhower of rain, whilſt the greateſt part of the ſuperincumbent atmoſphere is in a ſtate of encreaſe; but in general the barometer is to be depended upon; and I flatter myſelf that this account of the riſe and fall of the mercury in that inſtrument will prove, that the evaporation of wa-

ter is the encreaſe of the atmoſphere, and *vice verſa*.

Hitherto we have treated chiefly of evaporation where conſiderable degrees of heat have been applied; but the vaporific point of water is at a much lower degree, for ſpontaneous evaporation is generally ſilently and copiouſly going on in every degree ſuperior to that of the freezing point.

Extenſive as the atmoſphere is which ſurrounds this globe, it would not be difficult to prove, that in a very ſhort period, perhaps leſs than ten days, it would be rendered abſolutely unfit for the reſpiration of animals, if there was not a greater renovating ſource conſtantly going on, to balance the deſtruction which it is perpetually ſuſtaining, than any that philoſophers have hitherto diſcovered, at leaſt prior to the publication of Dr. Harrington on this ſubject; which ſhall be more freely diſcuſſed in the next paper; in which

ſome

ſome further enquiries will be made into the formation, deſtruction, and renovation of the atmoſphere, under a more general enquiry into the diſtribution of heat through the different objects of nature.

THE

MEDICAL SPECTATOR.

NUMBER XI.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

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SATURDAY, DECEMBER 10, 1791.

Sol auctor ſpiritus caloris atque luminis vitæ humanæ genitor et cuſtos. MACROBII Saturnal.

"We ſhould, therefore, to give an argument urged by any one its due weight, lay aſide all we think ourſelves on the ſubject, and confine our views entirely to what is before us; and when we have thus, without prejudice or partiality, conſidered the grounds on which he builds his opinion, we may call over again every particular, try it by our own *præcognita*, ſet the old evidence againſt the new, and, after giving it a fair trial, either embrace or reject it, as we ſhall find it ſupported by facts and ſound reaſoning. LESLIE on Animal Heat, p. 165.

WHEN we conſider that one gallon of pure air will not ſuffice for the uſe of one man longer than ſixty ſeconds, that the flame of a candle

of a middling ſize requires as large a quantity of pure air as a man, and when we add theſe to the fires, the lamps, and the various animals, not to mention putrifying and other ſubſtances, which are conſtantly decompounding the air, we hardly need carry our ideas beyond the cities of London and Weſtminſter to be convinced that the atmoſphere muſt require a copious ſource of renovation to keep up the balance, which ſource can only be found in the ſpontaneous evaporation of water. No ſooner does a ſhower of rain fall than it begins again to be raiſed by evaporation, keeping up a continual circulation.

There is little difficulty in conceiving that water forms a conſiderable part of the atmoſphere. The experiments of chemiſts and other philoſophers in a thouſand inſtances have proved that water may be extracted from the drieſt, the pureſt, and the moſt tranſparent air. There is, however, ſome difficulty

to

to conceive how it can be combined with heat. But, whatever difficulties may ariſe in this reſpect, they muſt vaniſh as to the matter of fact, upon the contemplation of a flaſh of lightning. Is rain more clearly evident to the eye or the feelings of man than the fire of lightning? How rarely does this, which may be truly called a decompoſition of air, take place, but a torrent of rain deſcends! That heat which held the water in a ſtate of aërial ſolution is ſet at liberty, in conſequence of which another component part, the water, falls by its gravity to the earth. In ſummer, and in ſultry climates, heat abounds; and it might, *à priori*, be expected, as it really happens, that in theſe countries and ſeaſons we often obſerve large and continued flaſhes of lightning, without the uſual torrent of rain; whereas in winter and colder climates the reverſe takes place; clouds, fogs, rain, and ſnow, are the general appearance. Nor is it any objection to

this idea, that in warmer climates there is annually a rainy ſeaſon. During ſeveral months of hot and dry weather immenſe quantities of water are ſoluted and elevated, and the atmoſphere is conſiderably encreaſed, till at laſt, from cauſes perhaps not yet perfectly explained*, the heat and water in conſi-

* "There is a proper pitch of ſaturation in every compound; and whenever any particular body of that compound predominates, ſo much of it as does predominate, beyond the proper pitch of ſaturation, will not enter into the compoſition of the compound, but will be as it were an alien, liable to be ſet looſe upon every trifling circumſtance. All compounds are united by the principle of attraction, which is Nature's univerſal law; and whenever there is an over-ſaturation of any ingredient, that over-ſaturation and proportion, having no body to attract it in the compound, is therefore expelled as an alien to the body. So phlogiſton, which abounds ſo copiouſly in the atmoſphere in the ſummer as to make an over-ſaturation, will produce lightning, that being the atmoſphere's method of clearing itſelf from this over-proportion; for, as I have juſt obſerved, agreeable to the laws of Nature, there is a proper pitch of ſaturation in every thing; and, whenever the air is too much loaded with phlogiſton, it takes the means of producing lightning to diſcharge it. And you will in general obſerve a great torrent of rain follow the lightning, formed of that water which helped to ſolute, in ſome meaſure, the over-proportion of phlogiſton."

Vide Phil. & Exp. Enquiry.

derable

derable quantities mutually desert each other, when torrents of rain descend, and fire pervades the whole troubled atmosphere. And we may truly say, with Dr. Harrington, "that, if it should "be all decompounded at once, the "phlogiston that would be let loose "would be such an immense proportion "as to set the whole world on fire."

Should any one, however, still be doubtful whether water is one of the principal component parts of the atmosphere, let him attend only to the destruction of air by flame. Every lamp in the city of London, after a clear frosty night, will shew this matter equally as well as the most elaborate chemical apparatus. The flame of a common street lamp, from the hour of five in the evening till six the next morning, cannot continue burning without altering the property, destroying, or rather (agreeable to the idea of Dr. Harrington) decompounding from thirteen to twenty-six hogsheads of atmospherical air. If

his doctrine be juſt, it muſt of neceſſity follow, that, in ſo conſiderable a decompoſition of air, that part which does not contribute to the ſupport of the flame muſt be collected in conſiderable quantity. Here then the theory is confirmed to ocular demonſtration; for in the morning every lamp will contain from one to two, three, and even four ounces of water, according to the degree of vigour with which the lamp hath burnt. If the theory is objected to, whence does this water proceed?

The ſame circumſtance takes place wherever a number of animals have been breathing. A well-inhabited ſchool-room is a proper place to obſerve this matter. After a froſty night, how beautifully are the windows feathered over with the congealed moiſture ſeparated from the air in the act of reſpiration*!

* "A candle being ſuffered to burn all night in a cloſe room, produces the ſame incruſtations on the windows." Vide Exp. Enquiry, p. 192.

This,

This, however, may be aſcribed to an exhalation of moiſture from the lungs, and is generally conſidered as ſuch. But it is, as Dr. Harrington hath juſtly obſerved, merely water, being free from every alkaleſcent tendency, which is always characteriſtic of perſpiration, and of every other animal ſecreted fluid. And we ſhall prove, when we come to ſpeak more immediately of the influence of the lungs on the atmoſphere in reſpiration, that it is water ſeparated from the compound called atmoſpherical air.

Further, that air is chiefly compoſed of water muſt, upon a moment's reflection, be evident to the moſt careleſs obſerver. The phenomena of rain, miſts, and dew, which we are ſo frequently obſerving to be formed from the moſt dry and tranſparent air, are perpetual proofs of it. And the clouds, which are floating in the higher regions, are ſo many reſervoirs of watery vapour, ready either for more compleat decompoſition in the form of rain, ſnow, or

hail, or elſe to be ſtill further diſſolved by the influence of heat, or, what is now with more propriety called a combination with heat into that ſubtle, elaſtic, fluid air.

It is upon this principle that a very trifling change, in point of local ſituation, often makes a very material one in the ſalubrity of the air. Wherever there is moiſture on the ſurface of the earth, the air neareſt to that moiſture muſt often be really compoſed of it; and thus the air which is *made* from a putrid or a ſtagnant pond or ditch, as might naturally be expected, is very unwholeſome; and we are not ſurpriſed to find the moſt obſtinate agues in thoſe farm-houſes where a ſlovenly dunghill, or a pond of black and putrid water, ſtands within a few yards of the door. And, was it not for that property which vapours and reſpired air have to fly up into the higher regions of the atmoſphere, the ſurface of the globe in every part, but more particularly in the vicinity

nity of impure moiſture, would very ſoon become entirely uninhabitable. Doubtleſs, many a dangerous fever has been generated from a ſmall unſuſpected ſource of putrid ſtagnant moiſture. Agues are well known to be thus frequently endemial through large tracts of country. The putrid and the bilious remitting fever of the Indies have ſuch an origin; and probably the plague, as has been often conjectured, may be attributed to a ſimilar ſource. The common conſent and experience of mankind hath ſtamped the character of ſalubrity upon the banks of clear and running ſtreams; and, if we admit this theory of the formation of the atmoſphere, we ſhall ſoon be convinced with what propriety it is done. How grateful to the ſenſe of ſmell is the *new made air*, after a ſhower of rain in the fields, when there has been hot and dry weather for a conſiderable time preceding! But, more eſpecially, how refreſhing is it when

the ſun immediately darts his rays upon the earth, and quickens the ſolution!

The greateſt part of mankind, for many hours in the morning, are breathing the ſame confined air in a cloſe chamber, poſſibly ſupplied from ſome adjoining impure ſource, whilſt the reſt of the animal creation are inhaling the morning dew in the form of new-made air; more conducive, more immediately neceſſary, to the life of man than the beſt and pureſt bread, or to horſes than the ſweeteſt hay. Perhaps this is one of the principal reaſons why the brute creation, while free from the dominion of man, enjoys almoſt perpetual health.

Every perſon muſt be ſenſible of the refreſhing ſenſations ariſing from watering the earth in ſummer; for, independent of the coolneſs occaſioned by evaporation, it is in fact *making* new air. But, in houſes and confined places, we are ſenſible of it to diſadvantage, for

no

no ſooner is the floor wetted than the vapour, as it riſes, ſteals the heat from every adjoining ſubſtance; and in this manner the moſt ſevere and fatal colds have been caught. May we not venture to ſay that air is an elaſtic fluid, chiefly compounded of heat and water; and that the formation, deſtruction, and renovation of the atmoſphere, are circumſtances perpetually going on, and mutually balancing each other?

The advantages of cleanlineſs and pure air have been urged by almoſt every writer on health; but theſe muſt be ſtill more powerfully enforced by the conſideration that air is not merely rendered impure, but abſolutely *made* of that moiſture which is perpetually evaporating from the ſurface of the earth. Putrid animal food, and bread that has been made of damaged grain, have been productive of the moſt fatal diſtempers; yet theſe, when compared with air, are infinitely leſs neceſſary to the ſubſiſtence of man; for life may be

be ſupported many days without either bread or any other food, but a few minutes only without air. It becomes an object, therefore, of the utmoſt importance to inveſtigate the reaſon why this fluid is ſo eſſentially neceſſary to animal life. We have attended to its deſtruction by fire, and we have ſlightly mentioned its deſtruction by the breathing of animals; but it is neceſſary that we ſhould be more particular in this laſt inſtance, as it will give us perhaps more diſtinct ideas of the nature of ſanguification, nutrition, and animal heat, than any that have been publiſhed previous to the diſcoveries of Dr. Harrington.

But before I proceed to treat of theſe important ſubjects, it will be proper to take notice of another copious ſource of deſtruction, or rather of decompoſition, to the atmoſphere, viz. *vegetation*, on the effects of which Dr. Prieſtley hath fallen into as capital an error as, we hope to ſhew, he had before done on the ſubject of reſpiration; for,

by

by a ſtrange kind of haſty deduction, this excellent chemical experimenter hath unfortunately pitched upon vegetation as one of the grand ſources of renovation to the atmoſphere. His experiments on this ſubject with ſprigs of mint and other vegetables are entirely inconcluſive. Had he expoſed his glaſs veſſels, containing water and injured air, to the rays of the ſun, without the vegetating bodies, he would have found the air which they contained equally as ſoon reſtored to its former goodneſs, perhaps ſooner, becauſe the effect of the ſun and water is much quicker in reſtoring injured air to perfection than the proceſs of vegetation in decompounding it. The vegetating bodies, therefore, can only be ſaid, during his experiments, not to have impeded the melioration of the injured air, which melioration was effected by the rays of the ſun and water, independent of, or rather, notwithſtanding the much ſlower proceſs of vegetation was all the time

operating

operating in a manner directly contrary. During the night, however, and in cloudy weather, he found no ſuch melioration to take place, for the air was then, in ſome inſtances, decompounded, or injured by vegetation.

Had this very excellent philoſopher, and another gentleman who hath been equally celebrated, viz. Dr. Ingenhouſz, made themſelves acquainted with Dr. Harrington's principles, upon their firſt publication, they might ten years ſince have corrected ſome conſiderable abſurdities into which they have fallen on this ſubject. To be more particular at preſent would carry me far beyond the limits of this paper, which is meant only to draw the attention of my readers to a much more valuable ſource of information than any which I can myſelf pretend to communicate. I will, therefore, for the preſent conclude, by quoting a paſſage or two from Dr. Harrington's "Thoughts on Air," particularly where he treats "*of Nature's pro-*

" *ceſs and elaboratory in forming the at-*
" *moſphere.*" P. 294.

" As we have given," he obſerves, " a general hiſtory of atmoſpherical air, " its qualities, formation, and proper- " ties, ſhewing its operation on animal " and vegetable life, it is only now left " us to ſhew how the great elaboratory " of Nature produces it; and I flatter " myſelf we ſhall be ſtruck with the " proceſs, as it ſhews Nature's elegant " ſimplicity and uniformity. Philoſo- " phers have anxiouſly ſought for this " important piece of information. Dr. " Prieſtley was anxious to find how the " air that is injured from animals, fire, " &c. was purified again. He expoſed " injured air to a variety of proceſſes, " and thought he diſcovered that vege- " tation and agitation in water purified " the air again. But had Dr. Prieſtley " reflected upon this *fact*, that injured " air becomes ſpecifically lighter than " pure, and, inſtead of being expoſed " to vegetation and the agitation of wa-

" ter,

" ter, rifes up into the higheft part of " the atmofphere; he muft have im- " mediately dropt his opinions, even " fuppofing that thefe two proceffes *had* " *been* fufficient to purify injured air.

" As our theory teaches us that inju- " red air, water, and the fun, will form " pure air again, and as thofe bodies " muft all center again in the clouds, " or the higheft part of the afmofphere; " therefore it was natural to conclude " it was Nature's great elaboratory for " forming pure air*, and that, as it " was formed and became fpecifically " heavier, it would gravitate towards the " earth, and as it became injured it " would afcend again.

" Before my theory fuggefted this " great and important elaboratory of " Nature, I ufed to be at a lofs to ac-

* By pure air Dr. Harrington here means atmofpherical air in its moft perfect ftate. It is neceffary to mention this, becaufe in the language of modern chemiftry the words *pure air* have a very different fignification, and lead to a wide field of error and confufion, which runs through the different explanations of a variety of chemical proceffes.

" count

" count for what became of the light " and fire which the clouds undoubtedly " arreſted from the ſun.

" Here then," he continues, " is Na- " ture's great office, and ſhe appears " like herſelf, great, powerful, and ſim- " ple; ſhe diſtributes the great all- " animating power of the ſun, by the " air, both to the animal and vegetable " kingdom."

In the next paper will be continued an attempt towards a general view of the diſtribution of heat through the different objects of nature.

THE

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NUMBER XII.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

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SATURDAY, DECEMBER 17, 1791.

" *Elementum igneum quod ſpectat, idem in ipſo ſolis corpore locum habere veriſimile eſt.*"

MAYOW de Spirit. Nitr. Aërio, Cap. VII. p. 129.

" I leave it to the adherents of phlogiſton to accommodate theſe phenomena to their doctrine; conſidering it, for my own part, as ſuperfluous to beſtow any further attention upon a ſyſtem which, after a long diſcuſſion, *has been fully refuted in all its modifications**, and which indeed ſeems on the eve of being univerſally abandoned."

BEDDOES. Vid. Phil. Tranſ. 1791, p. 181.

" In ſhort, there are ſo many phenomena, ſo many facts and obſervations, which concur in evincing phlogiſton to be on all occaſions the proximate cauſe of heat, that the only remaining way of evading this concluſion ſeems to be, to adopt at once the ſentiments of a late writer, who abſolutely denied the exiſtence of ſuch a principle in nature." LESLIE on Animal Heat, p. 270.

WHEN we take a chemical view of an animal body, whether we conſider it in regard to its blood, its mem-

* We ſincerely hope that the very valuable correſpondent, through whoſe hands we have been favoured

 with

membranes, fat, muſcular fibres, or bones, we are immediately ſtruck with the idea that it contains a very large proportion of that principle which the chemiſts of all countries, *till of late*, have agreed to denominate *phlogiſton*; the effects of which Dr. Black ſo judiciouſly deſcribes under the appellation of the principle of inflammability. There is hardly a body in nature in which this principle does not enter. Whether we caſt our eyes on the furniture of our houſes, or look abroad upon the trees in the foreſt, the beaſts in the field, the fiſh in the ſea, the ſea itſelf, or the mineral ſtrata in the bowels of the earth, this principle perpetually obtrudes itſelf on the eye of a chemiſt. There is hardly an object in nature but what conſiſts of it under dif-

with this and the other chemical papers, will pardon our taking the liberty to place theſe bold words of Dr. Beddoes, as an additional ornament to the Paper of this day. We conceive it indeed to be a pleaſant amuſement to our readers, to notice the very different concluſions which chemical adepts are capable of drawing from the ſame premiſes.

ferent

ferent modifications, or combined with different baſes. Theſe are facts formerly ſo well received, and ſo univerſally known, that they hardly need be inſiſted upon. The reſtoration of the calces of metals to their metallic form, by a junction with this principle, when obtained indifferently from almoſt every combuſtible body in nature, was once thought to aſcertain the fact. It may, however, be worth while to convey ſome further idea of this matter by analogy, comparing the junction of phlogiſton with ſuch a variety of bodies to that of an acid and alkali, or rather to that mephitic air which is believed to be latent, or fixed in a block of marble.

Previous to Dr. Black's diſcoveries reſpecting fixed air *, it would have been as difficult to form any idea of ſuch latent or fixed air as it is now to

* That accurate and penetrating experimentaliſt, Mr. Hales, though he knew nothing of the chemical properties of what is now called fixed or mephitic air, thought that air did exiſt in many bodies in a fixed ſtate.

conceive that a lump of wood, tallow, bees-wax, or iron, contains a large quantity of what is with the ſtricteſt propriety denominated latent or fixed heat.

As fixed air has the wonderful property of entering into the ſubſtance of a block of marble or lime-ſtone, and of there lying hid in ſuch a manner as to be totally inconceivable to the underſtandings of mankind, abſolutely loſing every appearance of air; ſo hath heat the property of entering in a ſimilar manner into the ſubſtance of a vaſt variety of the objects of nature, but more eſpecially of every metallic earth or calx; thereby giving it its metallic form, and continuing intimately combined with it, ſo as, without the aid of ſome chemical or mechanical proceſs, to elude both our feelings and the detection of the niceſt thermometer. As fixed air is capable of rendering the moſt cauſtic alkali or lime perfectly mild and harmleſs to the touch or taſte,

ſo hath fixed heat the property of rendering ſome of the moſt corroſive and poiſonous metals equally mild and harmleſs. There is hardly any, from the ſtrongeſt concentrated mineral acid to the weakeſt vegetable one, but what will expel fixed or mephitic air from alkaline ſubſtances, combining with them into a variety of neutral ſalts. Some of the ſtronger mineral acids, and probably the vegetable, if properly concentrated, will alſo expel inflammable air from metallic ſubſtances, with which they alſo combine, forming a variety of neutral ſalts. They who deny the exiſtence of phlogiſton may conſider this as merely a ſeparation of inflammable air from the different earthy or metallic baſes; but ſurely the inflammable air may with equal propriety be conſidered as the principle of inflammability taking on, *in conjunction with water*, a new form, viz. that of air; for the higheſt concentrated acid which we can uſe on theſe occaſions contains a ſufficient quan-

tity of water to form, in conjunction with phlogiſton or fixed heat, ſome proportion of that elaſtic fluid which we call inflammable air.

If we attend ſtill more cloſely to this circumſtance, we ſhall be compelled to acknowledge that it is actually the caſe, for the moſt concentrated mineral acid muſt part with its water upon its particles uniting with thoſe of the ſolid metal. It becomes then, in fact, a caſe of double elective attraction; the acid and the metallic earth unite, the water quits the acid, and unites with phlogiſton in the newly-formed aërial compound; yet all the water cannot be diſpoſed of in this way, for a conſiderable portion of it enters into the metallic ſalt as it ſhoots into chryſtals, from which, by the application of a moderate heat, it may be expelled in its pure ſtate, leaving the acid and metallic earth in the form of a ſaline powder. The quantity of phlogiſton which is fixed in a pound of any metal will occupy an immenſe ſpace

when expanded, in conjunction with water, in the form of inflammable air. The ſame thing may be obſerved of the mephitic vapour which riſes from alkaline ſalts, and abſorbent earths, when they are mixed with an acid in a ſolid form; for here no fixed air will riſe. To ſay with Dr. Black, that this is owing to the particles of each ſalt being unable to get within the ſphere of each other's attraction, is an anſwer that may ſilence, but not ſatisfy. It muſt be owing to the want of water to combine with the mephitic acid in the form of fixed air; for no ſooner is moiſture added, than the fixed air riſes copiouſly. And to this cauſe we ought alſo to aſcribe part of the loſs of weight, which was firſt obſerved by Dr. Black on the mixture of acids and abſorbent earths, or alkaline ſalts.

Fixed air, as an *acid*, neutraliſes, and renders mild, the moſt corroſive alkali or lime. Dr. Prieſtley hath juſtly conceived phlogiſton to be the principle of

alkalinity *, and accordingly, like ſomething alkaline, we obſerve it, from whatever ſubſtance obtained, to form a junction with the moſt corroſive mineral acids, and to rob them of their activity as ſuch; thus the muriatic acid, that has been once uſed in making the corroded preparations of anatomiſts, is ſo nearly neutraliſed, and rendered inert, that it will not repeatedly anſwer that purpoſe. The ſtrongeſt vitriolic acid loſes its cauſtic property in the ſame manner, but more ſtrikingly, by junction with oil, bees-wax, or tallow, which abound with fixed heat. As fixed air may, by art, be ſeparated from marble and lime-ſtone, and may be made to appear evident to our ſenſes, ſo may the moſt fixed heat be ſeparated, by art, from the bodies which contain it, be-

* "As there is ſomething in dephlogiſticated air that "ſeems to be the principle of *univerſal acidity*, ſo I am "ſtill inclined to think, as I obſerved in my laſt volume "of experiments, that phlogiſton is the principle of "*alkalinity*, if ſuch a term may be uſed, eſpecially as al-"kaline air may be converted into inflammable air."
Vid. Phil. Tranſ. for 1788, Part I. p. 167.

coming

coming immediately obvious to our feelings, and to the detection of a thermometer.

Fixed air, in a variety of chemical proceſſes, may be made to paſs from one ſubſtance to another, as in certain caſes both of ſingle and double elective attractions, in which, from a knowledge of the nature of each particular product, we are abſolutely certain that a tranſition hath taken place, though the air in theſe caſes does not appear till, upon ſome further proceſs, we extract it from the ſubſtance which did not at firſt contain it. And thus, in a thouſand inſtances, chemiſtry hath taught us that fixed heat may be made to paſs from one body to another, giving an almoſt endleſs variety in the appearances of nature: but it is perhaps impoſſible to obtain or confine this principle in a ſeparate ſtate, unleſs we conſider the electrical fluid to be another modification of heat, which may be confined in a glaſs cylinder that has been previouſly

viouſly exhauſted of air, where it is apparent to the eye ſhining in the dark. Is not phlogiſton, in its ſeparate ſtate, actual heat, ſenſible to our feelings, and to the expanſion of mercury in the thermometer, a thing ſo aſtoniſhingly ſubtle, that it has for many ages been conſidered merely as a quality? One excellent chemical philoſopher hath even gone ſo far as to attribute *abſolute levity* to the principle of which I am now treating; and his arguments, if not concluſive, are certainly ingenious. But, after a lapſe of more than twenty years, I may poſſibly be now alluding to a doctrine which the experiments and obſervations of other philoſophers, equally ingenious, may long ſince have induced him to lay aſide.

How, indeed, could an idea of any thing *material* be annexed to that which did not appear to be poſſeſſed of weight, which eluded the ſenſes, and which is ſo ſoon diſſipated, and apparently annihilated? The induſtry and the ingenuity,

nuity, however, of the preſent age hath gradually ſurmounted ſome of the greateſt difficulties reſpecting the inveſtigation of heat. We may trace a regular and gradual progreſs. When the late Dr. Cullen firſt obſerved the mercury to ſink in the thermometer, upon the evaporation of æther from its ſurface, little did he ſuppoſe that ſuch a fact, however curious, ſhould be the firſt ſtep as it were in our advances towards a ſucceſsful inveſtigation of the moſt important proceſſes in nature*

What-

* As the evaporation of æther from the ball of a thermometer affords a pleaſing and elegant proof of the refrigerating effect of evaporation, ſo, on the contrary, may we obſerve the generation of heat by abſorption or attraction from the atmoſphere, in a manner equally elegant, by dipping the ball of a thermometer into the vitriolic acid, which, upon being removed into the air, will retain a drop of the acid; and this will immediately begin to act upon the air, which will as ſpeedily be ſeen by the mercury mounting up to 96 degrees, even if the experiment is performed in the ſevereſt froſt, when both the acid and the air are below 32 degrees. The nitrous acid will ſhew the ſame phenomenon; but the muriatic will not raiſe the mercury more than three or four degrees. If theſe experiments, which I believe are new, do not abſolutely demonſtrate the exiſtence of latent heat in

Whatever idea philoſophers may entertain of the body of the ſun, whether they may conſider it as a heaven, an elyſium, or region of bliſs for the ſouls of the righteous to reſide in after death, as ſome have done, or whether they may be inclined, with others, to degrade it to hell, and regard it as an immenſe

in the atmoſphere, I ſhould be happy to ſee them differently explained. Many may be ſatisfied, by being told that it is merely the common effect of the vitriolic acid in producing ſenſible heat upon mixture with aqueous moiſture, which it attracts from the atmoſphere; and they would be further ſatisfied, by being told that the vitriolic acid is well known to receive moiſture from the air, becauſe it gets more diluted, and encreaſed in quantity, by expoſure to it, the ſame as alkaline ſalts in the act of deliqueſcence. This, however, is certain; Dr. Harrington ſhews, that the vitriolic acid does not injure the air by taking phlogiſton from it, but the nitrous acid, he aſſerts, will do it in ſome degree when highly concentrated. The nitrous acid, however, which raiſes the mercury in the thermometer to as great a degree as the vitriolic, produces no ſenſible heat upon being mixed with water; hence it is obvious, that they both act upon ſome other principle than the mere attraction of moiſture. Upon mentioning this circumſtance to a very excellent chemical philoſopher, he acknowledged that the fact was entirely new to him; whether it be ſo to the generality of my readers, I know not. He ſuggeſted the propriety of trying it *in vacuo*, which I recommend to thoſe who are intereſted in this kind of ſtudy, as a proſecution of the enquiry may lead to ſome uſeful deductions.

body

body of actual fire for the punishment of the damned (circumstances into which it is neither my business nor my inclination to enquire), they cannot surely deny it to be the source of heat to this globe. Let us then trace that heat from the first appearance under which it becomes an object of our senses, viz. in the rays of light. The focus of a burning glass, and the reduction of the calx of silver to its metallic form by the rays of light, teach us that actual fire, phlogiston, and the rays of light, are the same thing in different situations, and under different appellations.

Let us then consider the rays of light as the first modification of heat that we are acquainted with. And here a question will naturally occur to the inquisitive mind. Since matter, though infinitely divisible, can never be annihilated, if we pretend to consider heat as a material substance, it is incumbent upon us to declare what becomes of the immense

quantity

quantity which is perpetually falling upon the ſurface of the globe.

And, before I enter more particularly into the doctrine of animal heat, it ſhall be my buſineſs, in the further proſecution of this general enquiry into the diſtribution of heat through the different objects of nature, to endeavour to give ſome anſwer to this important query, which I am perſuaded can only be done on the principles of the Harringtonian philoſophy.

THE

MEDICAL SPECTATOR.

NUMBER XIII.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,
Printed, by J. NICHOLS, for the AUTHOR,
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MDCCXCI.

THE MEDICAL SPECTATOR.

NUMBER XIII.

SATURDAY, DECEMBER 24, 1791.

Sol auctor ſpiritus caloris atque luminis vitæ humanæ genitor et cuſtos. MACROBII Saturnal.

Inde mare, inde aër, inde æther ignifer ipſe. LUCAN.

"The chief object of theſe enquiries is to diſcover the principles of atmoſpherical air, and the uſe which is made of it in the great ſyſtem of Nature."

HARRINGTON's Thoughts on Air, p. 38.

"Sir,

"IN your laſt Saturday's Paper I determined, in purſuance of my plan of taking a general view of the diſtribution of heat through the different ob-

jects of nature, to declare what becomes of the immenſe quantity of heat which is perpetually falling upon the ſurface of the globe.

" Dr. Black's diſcovery, that fluidity depends upon the preſence of latent heat, affords in part a pleaſing and ſatisfactory reply. An immenſe quantity of heat is neceſſarily abſorbed in preſerving the fluidity of rivers, lakes, and oceans. Very large quantities of heat enter into the ſolid ſubſtance of the vegetable creation; nor is it neceſſary here to decide whether it enters immediately in the form of light, or by decompoſition from the air, or with the moiſture attracted by the roots; or whether in all theſe different ways at once. But, if we attend to the obſervations contained in the firſt paper on this ſubject, we cannot doubt but that immenſe quantities of heat are expended on the vegetable creation. It riſes in aſtoniſhing quantities with vapour, for the conſtant ſupply and renovation of

the

the atmoſphere*; and, in its combination with water, it penetrates the inmoſt receſſes of the globe, in the ſtrata of which it is variouſly attracted, compounding and decompounding in various proportions, and with various materials, contributing towards the origin of every ſpecies of mineral and metallic ſubſtance. In ſome inſtances of its various combinations we ſee it return by natural ſprings of hot water; but, in other inſtances, we know that it muſt actually and inſtantaneouſly be decompoſed, eſcaping in its ſenſible form, perhaps giving origin to earthquakes, or returning from the bowels of the earth, in the form of volcanic exploſions.

* Dr. Crawford's ingenious and elaborate experiments *demonſtrate* the exiſtence of heat in the atmoſphere; but that heat is preſent there as a chemical mixt, being *neutraliſed* with water and the aërial mephitic acid in a ſtate of compoſition. Dr. Crawford's and Dr. Harrington's theories in ſome reſpects agree; but in the ſequel of this enquiry it will be ſhewn how very widely the firſt of theſe gentlemen has wandered from the true ſimplicity and harmony of nature.

" So many, and ſo important, are the changes which take place in the modifications of heat, that we may with juſtice ſay the whole ſcience of chemiſtry is little more than a ſtudy of its effects; for, if heat is acknowledged to be a ſubſtance, Dr. Black's elegant definition of chemiſtry, viz. that it is " a ſtudy of the effects of heat and mix- " ture," loſes its propriety. It is our buſineſs, however, at preſent to conſider heat only in its relation to animal life. We obſerve it in every part of animated nature giving life and motion to millions of inſects and reptiles; and even man himſelf, the boaſted lord of the creation, can no longer exiſt than while he is actuated by the cheriſhing influence of heat. It is an object, therefore, of the utmoſt importance, and worthy of the greateſt faculties of man, to form juſt ideas of the intimate connection ſubſiſting betwixt heat and animal life.

" When

"When we trace the body of man, from its firſt gelatinous origin to its utmoſt extent of growth, we obſerve a gradual depoſit of what chemiſts have called PHLOGISTON, or the PRINCIPLE OF INFLAMMABILITY; what is now, perhaps, with more propriety denominated FIXED HEAT. We alſo obſerve it, during the whole time of its connection with life, ſupporting a degree of actual or ſenſible heat equal to 96 of Fahrenheit's thermometer. The inquiſitive mind is naturally led to enquire, from whence is this aſtoniſhing quantity of heat ſupplied?

"When we caſt our eyes upon the *bon vivant*, who daily ſwallows large quantities of fat phlogiſtic ſubſtances highly ſeaſoned, and generous liquors pregnant with phlogiſton, we are naturally led to conclude, with that ingenious gentleman, * Mr. Rigby, that the food of man is not only ſufficient to ſupply him with a due proportion of animal heat, but to allow for the car-

buncled noſe, the gouty ankles, and the eryſipelatous face, in ſhort the whole train of external and internal fiery diſeaſe; we are even ready to join with Dr. Prieſtley, in ſuppoſing that the lungs are neceſſary to carry off a redundance of phlogiſton. But we ſhall find that this is taking a partial and fallacious view of the ſubject. When we enter more deeply and fairly into it, we ſhall be again under the neceſſity of attending to the reſearches, and adopting the concluſions, of Dr. Harrington, however widely they may differ from thoſe which are generally received.

"Man, who deviates ſo much from the ſimplicity of nature, will be the proper inſtance when we treat of diſeaſe. Dr. Harrington judiciouſly obſerves, that the animal heat of a ſheep is equal to that of a man, and that the moſt eſſential part of its ſyſtem is actually compoſed of phlogiſton, whilſt its food is ſimply graſs, affording a weak, watery,

aceſcent-

aceſcent chyle, oppoſite in its nature to every thing of a phlogiſtic tendency; yet, no ſooner does this chyle paſs through the lungs than it becomes animalized; red globules are formed, acquiring an oily repulſive property to water, large quantities of ſolid fat are laid up, and a conſtant degree of heat ſupported, equal to 96 of Fahrenheit's thermometer. Will any philoſopher, he aſks, ſerioufly maintain that ſuch large proportions of phlogiſton, ſo much animal heat, can be entirely produced from graſs? Yet graſs is frequently the only food of this and many other animals. Let us for a moment regard the bull or the horſe. Can a degree of heat and animation, ſuch as they poſſeſs, "collectum-"que premens ſub naribus ignem," entirely proceed from the herbs of the field, which even paſs out of their bodies more highly charged with phlogiſton than before they were ſwallowed? witneſs the ſmoaking dunghill, and the large quantities of urine pregnant with

phlogiſtic ſalts, from which the volatile alkali ſpontaneouſly ſeparates, and from which phoſphorus or actual fire may be generated. Can all theſe indiſputable marks of phlogiſton originate in their food only? Can it afford not only the quantities we have juſt mentioned, but ſo great an overplus, that the lungs, the largeſt and the moſt important organs in the animal machine, ſhould be formed merely to act as ventilators to diſcharge it, leſt in a few minutes death ſhould be the conſequence of its retention?

"If the arguments already advanced have been ſufficient to ſhew that the atmoſphere is a neutraliſed compound, in which fire and water form two very principal ingredients; I hope there will be little difficulty in agreeing with Dr. Harrington, that the reſpiration of animals, which is ſuch a perpetual ſource of deſtruction to the atmoſphere, is a decompounding proceſs, agreeable to the table of elective attractions. I truſt we

ſhall be able, with him, to conclude, that the heat or *caloric*, as it is now denominated by the foreign chemiſts, but what ought to be called phlogiſton, or concentrated fire, is attracted by the blood in its paſſage through the lungs, which, after having circulated through the whole compages of the animal, is inceſſantly returning to the lungs for freſh ſupplies, to be again diſtributed through the whole vaſcular ſyſtem, carrying with it nutrition and heat; from which, whilſt the animal is in a ſtate of encreaſe or thriving, large quantities of ſolid fat are depoſited. In ſupport of this idea we have the teſtimony of the accurate Boerhaave, that the blood is actually warmer in the *vena portæ* than in the *vena cava* of the ſame animal. "This is a little ſtrange, and "deſerves the moſt ſerious attention; "that the atmoſphere, which is ſo many "degrees below the temperature of the "blood, in froſty weather for inſtance, "ſhould, inſtead of almoſt congealing

"the

" the blood, make it conſiderably war-
" mer. This is ſtill more extraordinary
" when we reflect how wonderfully
" Nature has conſtructed the lungs, to
" expoſe ſo large a ſurface of the blood
" to the air. Boerhaave ſays, that the
" ſurface expoſed in the lungs is larger
" than the whole external ſurface of the
" animal; yet, wonderful to relate, this
" great expoſure to an atmoſphere which
" is congealing every other fluid in Ice-
" land, &c. will have a quite contrary
" effect on the blood, turning it conſi-
" derably hotter. Yet the air, which
" has been expoſed and expired, will
" have imbibed much *(ſenſible)* heat, be-
" coming of the temperature of the
" blood. Here is a paradox inexplicable
" upon the old doctrine, that two bodies,
" one of the temperature of 96 of Fah-
" renheit, and the other conſiderably
" below 32 degrees, ſhall mount up to
" 96; yet, inſtead of ſtealing this addi-
" tional temperature from the other, it
" communicates to it alſo an additional
" degree.

" degree. Upon the old doctrine this " is truly a paradox; though, when it " is fairly canvaſſed, it is by no means " ſtrange, but what is chemically taking " place in other bodies." P. 139, 140.

" During the act of incubation we have an opportunity of obſerving the proceſs gradually going on. Actual heat being applied either by the body of the parent, by well-regulated ovens, or by the heat of the ſun, it is gradually abſorbed, and, at the concluſion of the proceſs, we behold a perfect animal formed, conſiſting of fat, red globules, muſcular fibres, &c.; in ſhort, a ſyſtem of phlogiſtic animation. In this proceſs we are well convinced of the application of phlogiſton; but where was the poſſibility of that principle being diſcharged from the animal? May we not boldly affirm, that we have here an ocular demonſtration of the fixation of heat in the formation of the ſolid ſubſtance of the animal? And how, upon any other principles than thoſe of Dr. Harrington, can

can we account for that power, which this newly-produced animal is endowed with, of immediately decompounding the air, and extracting its future heat from it, even when the air itself is below the freezing point, and capable, in a very short time, of reducing the animal to a frozen lump, if a stop is put to its respiration? In the coldest habitable regions, the newly-born infant is immediately able to generate as strong and, I believe, a stronger degree of heat than the mother from whose body it hath just proceeded."

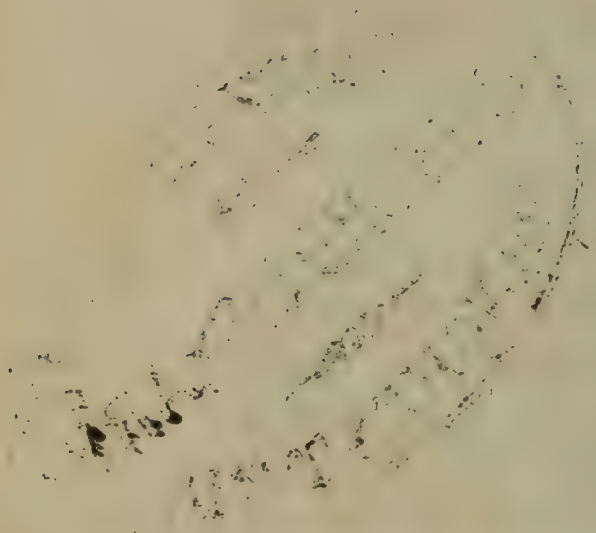
*** Our Communication having been three times interrupted betwixt Villers Street and the Press, owing we suppose to the very great eagerness of the younger parts of our readers to get a peep at the Proof; we must earnestly request, notwithstanding it may be deemed a compliment, that they will in future suspend their curiosity; that this Work may have the advantage of the Author's last polish. To the above circumstance must

muſt be attributed the inaccuracies of N° XII; in the 187th page of which, read the ſecond ſentence as follows:

"The ſame thing may be obſerved of the mephitic vapour, which riſes from alkaline ſalts and abſorbent earths; for, when theſe are mixed with an acid in a ſolid form, no fixed air will riſe*."

Then let the following note be added:

"* No fixed air *can* riſe, becauſe one only of its elements, viz. the *aërial mephitic acid*, is preſent. In fact, we cannot with more propriety ſay that a piece of marble contains fixed air, than that a piece of iron contains inflammable air; for each of theſe ſubſtances contains *one* only of the reſpective elements of thoſe airs."



THE

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NUMBER XI.

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THE MEDICAL SPECTATOR.

NUMBER XIV.

SATURDAY, DECEMBER 31, 1791.

Quoad vivimus neceſſario ſpiritum de cœlo ducimus.
FERNEL. de Morb. Cauſis. Cap. xiii. p. 369.

"The general who, like Epaminondas, or Wolfe, dies in the arms of victory, dies with ſatisfaction; but not ſo he that is cut off in the beginning of a doubtful, though promiſing, engagement. *Thus I feel on the idea of ceaſing to breathe, when I have but juſt begun to know what it is that I breathe.*" Dr. Prieſtley.

"IF what has been already ſaid in the twelfth number of this work ſhould not be ſufficient to convince your readers that the terms *fire*, *heat*, *matter of heat*, *fixed fire*, *neutraliſed fire*, *fixed* or *neutraliſed*

traliſed heat, *concentrated fire*, *quieſcent fire*, *principle of inflammability*, and many others, are ſynonymous with phlogiſton, I muſt beg leave to refer them to pages 8 and 278 of Dr. Harrington's "Thoughts on Air," where this ſubject is largely treated on. Perhaps the words *actual* and *concentrated*, or *neutraliſed fire*, may be fully equal to convey every idea which is wanted in this ſtudy; the firſt ſignifying this principle when it is ſet looſe from its attraction or chemical affinity with any ſubſtance; and the other, when it is fixed and imperceptible to the thermometer. It is a matter then of little conſequence under what appellation we treat of HEAT, provided we have proper notions of its nature as a principle in the combination of bodies. And, perhaps, thoſe philoſophers, who are giving up, as they call it, the doctrine of phlogiſton, are inſenſibly drawing nearer and nearer to an adoption of the Harringtonian ſyſtem, to which they *muſt* come at laſt; a ſyſtem which conſiders

ſiders phlogiſton as the *pabulum vitæ* of animals.

"Can we doubt that phlogiſton or heat is attracted by the lungs from the air, when we recollect that heat has been indiſputably proved to be the cauſe of elaſticity throughout all nature, and that it is well known that air, even at 32 degrees, is robbed of a part of its elaſticity by entering the lungs of an animal, notwithſtanding it is there expoſed to 96 degrees of ſenſible heat, which in any other ſituation (unleſs this important change had taken place) muſt have encreaſed both its elaſticity and expanſion conſiderably?

"That the red globules are formed in the lungs by a junction with this principle cannot be doubted, when we conſider that the blood is actually of a much brighter red in the pulmonary vein than in the pulmonary artery, which cannot be owing to the agitation which the blood receives in the lungs, for it would be very eaſy to prove that the blood is

conſiderably more agitated during its circulation through the reſt of the body; notwithſtanding which, it returns to the lungs, robbed conſiderably of its lively crimſon*. During its paſſage through the reſt of the body, the red globules have many of them been decompounded, giving out a large ſupply of animal heat. But, if the animal is in a thriving or encreaſing ſtate, part of the phlogiſton is depoſited in the form of fat (which conſiſts of phlogiſton neutraliſed with a peculiar acid), as a reſervoir for future heat and nutriment. How invariably do we obſerve all the hyperborean animals accumulate large quantities of fat in ſummer, as a ſupply for nutriment and animal heat during

* That the blood acquires its red colour in the lungs has been proved by Hewſon, and maintained by others previous to him. On this ſubject of red and black blood, which forms ſo very prominent a feature in Dr. Goodwin's ingenious "Eſſay on the connection of Life with Reſpiration," Dr. Harrington, in his "Experimental Enquiry," publiſhed in 1780, has largely treated. Vide pp. 111, 112, 113, 114, 115, 116, 117, 118, 120, 121, 135, 136, 137, 138, and in other places.

their

their ſtate of retirement in the winter, when it is ſlowly and gradually re-abſorbed and decompounded, and we ſee life and animal heat continued without the aid of freſh food, with the conſumption, however, of almoſt every particle of the reſervoir of fixed heat!

"But let us turn our eyes to the human ſpecies, where we ſhall ſee the ſame proceſs going on in a much more rapid manner. Every perſon muſt have obſerved how large a quantity of fat or fixed heat is decompounded, in a few days, during a burning fever. Almoſt every particle of fat diſappears, without the ſmalleſt oily or greaſy evacuation, either by ſtool, urine, or perſpiration; there is nothing to account for the waſte of fat but an extraordinary encreaſe of actual heat. And we have here a proof of the red globules being alſo rapidly decompounded, for no ſooner does this encreaſed action in the blood veſſels, with its concomitant heat, take place, than veneſection ſhews us

that the blood, even as it circulates in the body, hath loſt its lively crimſon, and, before it is cool, ſcarcely a red globule will be ſeen on its ſurface. Yet this pale ſurface, or buffy appearance, which, it muſt be acknowledged, will ſometimes appear in caſes of extreme debility that forbid the uſe of the lancet, from experience has been called an indiſputable mark of inflammation, and which, in a great meaſure, deſerves that appellation, by expoſure will again decompound the air, and acquire a crimſon colour from it; of which a very familiar inſtance may be obſerved in the art of veneſection. When the moſt highly-inflamed and darkeſt coloured blood is ſuffered to fall into the baſon, in a full ſtream from a conſiderable height, it is certain to froth, and the fineſt crimſon blood will be found to ſurround every bubble of air, whilſt the reſt of the ſurface does not ſhew a ſingle red globule. And the darkeſt coloured blood will inſtantaneouſly recover its

red

red colour upon the application of nitre in powder, which is a ſalt abounding ſo much with phlogiſton, that one pound of it will furniſh 12,000 cubical inches of the pureſt air ſaturated with that principle. I am aware that Dr. Prieſtley, in his valuable Experiments, calls this air *de*phlogiſticated. I have no doubt, however, but he will ſoon diſcover this to be a miſnomer; and I flatter myſelf the time is at hand when he will agree with Dr. Harrington, that what he hath hitherto called *de*phlogiſticated air is air highly charged with phlogiſton or fixed heat. The very act of exploding it, which he hath ſo repeatedly performed, ought to be alone ſufficient to convince him of this. And the *water*, which he hath obtained in ſuch exploſions, ſhould alſo demonſtrably prove to him that Dr. Harrington's general theory, that atmoſpherical air is a compound of water, phlogiſton, and aërial acid, is fixed upon the firm baſis of experiments conducted by himſelf.

" But an enquiry into the *origin* of nitre will be the beſt argument to prove that the *de*phlogiſticated air, as it is called, which that ſalt yields, abounds with phlogiſton. Nitre originates in the putrefaction of animal and earthy ſubſtances, in climates where heat abounds; and it is an eſtabliſhed fact, that the air is injured or altered in the ſame manner by putrefaction as by the combuſtion of inflammable ſubſtances, or by the reſpiration of animals. If air then is injured by *receiving* phlogiſton from putrifying ſubſtances, it is an inexplicable paradox, that a ſalt, which is known to be generated by putrefaction, and to contain an immenſe quantity of phlogiſton, ſhall yield air, which will anſwer the purpoſes of animal life and combuſtion better than the pureſt atmoſpheric air, for it ought, upon this principle, to yield air capable of extinguiſhing flame. Is it not more conſonant to the general courſe of nature to ſay, that putrefaction, which has been proved to injure

injure air in the ſame manner as it is injured by the reſpiration of animals, depends upon the putrefying ſubſtance *attracting* the phlogiſton or heat from the air, which of courſe will no longer ſupport either flame or animal life, as it hath loſt that principle, on the preſence of which the continuance of both flame and animal life depend? Do we not obſerve the phlogiſton, which the air loſes, enter into the compoſition of the ſalt, from which it again returns in the form of that air which has been very improperly denominated *de*phlogiſticated?

"Perhaps, however, it may ſtill be alledged, that putrefaction injures air by *communicating* phlogiſton to it; and, as putrefaction certainly will communicate phlogiſton after the proceſs hath gone on to a certain length, we muſt attend ſtill cloſer to this argument.

"Let us expoſe a ſmall quantity of animal mucus to the ſun or to the air, but let it firſt be examined moſt accurately

rately both by "ſmell, taſte, and co-
"lour;" then by chemical proceſs, "it
"will be found to be an inſipid, in-
"odorous, watery body; but by expo-
"ſure to the air it ſoon wonderfully
"changes to the oppoſite extremes in
"all its qualities. It becomes of a fœ-
"tid, cadaverous ſmell, its taſte is pun-
"gent and noxious, its colour changes
"from limpid to green; nay, it will even
"become luminous, and ſhine in the
"dark. From giving out only water
"by chemical proceſs, it will now yield
"ſtrong volatile ſalts, and become
"highly inflammable. Nay, it even
"now contains ſo much phlogiſton,
"that it may be formed into inflam-
"mable air. In ſhort, if you had put
"this animal mucus into the fire before
"it was expoſed to the air, it would
"have extinguiſhed it the ſame as wa-
"ter; but after expoſure it will become
"inflammable, and burn *." And,

* Vide Harrington's "Experimental Enquiry into the firſt and general Principles of Animal and Vegetable Life."

laſtly,

laſtly, while this animal mucus is acquiring all theſe inconteſtable marks of phlogiſton, the air to which it has been expoſed will in proportion have loſt the power of contributing either to the ſupport of animal life or flame. It will be reduced to that ſtate which has been erroneouſly denominated *phlogiſticated*, but which ought to be called *de*phlogiſticated, that is, deprived of that principle or heat which, in conjunction with water and the aërial mephitic acid, conſtituted air.

"If a further argument is neceſſary to eſtabliſh this very important point, we need only caſt our eyes upon a putrefying animal ſubſtance, which will be found to be covered with that moiſture, which is alſo ſeparated from the air during its decompoſition; or, to recollect that, if the air had been excluded from the animal ſubſtance, it would have continued the ſame inodorous, inſipid, watery ſubſtance as at firſt, ſhewing neither mark of putrefaction, nor

of

of the generation of phlogiſton. If the putrefying ſubſtance acted by giving out phlogiſton to the air, "how comes "it that animal ſubſtances may be kept "months in the open air, without pu- "trefying, in the polar regions, whilſt "the putrefactive proceſs commences "in a few minutes within the Tropics, "where the air may be ſuppoſed to be "already ſaturated with phlogiſton?"

"The ſhort limits to which I am confined will not permit me to purſue this theory through a variety of diſeaſes and affections to which the human ſyſtem is liable. But I will juſt obſerve, that Dr. Harrington, having eſtabliſhed his theory of the production of animal heat by the attraction of phlogiſton or latent heat from the atmoſphere, by the blood as it circulates through the lungs, where it combines with the chyle, forming red globules, which, ſlightly retaining this principle, eaſily give it out during the general circulation, goes on to ſhew that the ſurface of the body hath alſo

a power

a power of decompounding the air. He confirms this by experiment, and by obſervations on the red colour of the ſurface of earth-worms. The face and hands are parts of the human body, principally expoſed to the influence of air and light, in conſequence of which they acquire a very different colour from the reſt of the body. The arms of laborious women have a vigorous red colour as high up as the elbows; whilſt thoſe of more delicate women and children, and no leſs delicate men, which are conſtantly covered from the air, are pale and colourleſs, like endive or celery under the operation of blaunching. Theſe varieties, it is preſumed, are only to be accounted for upon the principles of a ſtronger or weaker abſorption of phlogiſton from the air; whilſt that change of complexion which comes under the denomination of tanning or ſun-burnt, is well known to be the immediate effect of the ſun.

" Dr.

" Dr. Goodwin, in his elegant treatiſe on the connexion of life with reſpiration, informs us, page 63, " that it " has been ſhewn by Dr. Prieſtley that " atmoſpheric air will change the co- " lour of blood through the coats of " a bladder." But he ought to have known, and to have mentioned, that Dr. Harrington likewiſe gave a much more ſatisfactory experiment of a ſimilar nature; where he is ſpeaking of the difference of temperament, " I " took," ſaid he, " a bladder from the " body of a ſmall, tender calf, and " another from that of a bull, in both " I placed a quantity of the ſame " blood; after expoſing them for " ſome time to the ſame atmoſphere, " and then examining them, I found " the blood in the ſmall, relaxed, " tender-fibred bladder had attracted " conſiderably more phlogiſton from " the air than the blood in the denſe- " fibred bladder. To argue *à priori* " one would have ſuppoſed that the

" thick

" thick coats of any bladder would " have totally impeded the blood's " power of attracting phlogiſton from " the atmoſphere, as the immediate " contact is thereby hindered; but yet " ſuch is the great power of our juices " in decompounding the air, that the " ſkin or bladder cannot hinder it; " they only have it in their power to " reſtrain the attractive principle with- " in ſome degree or bounds." Vid. Exp. Enq. p. 272.

" But to return more immediately to the ſubject of the preſent paper: it is impoſſible here to refrain from mentioning how well this doctrine applies in accounting for the injurious effects which the atmoſphere has upon wounds, but more particularly wounds of cavities. This has been a common remark of ſurgeons, particularly ſince Mr. John Hunter publiſhed his obſervations on the ſubject; but it was reſerved for Dr. Harrington to account in a ſatisfactory manner for the fact which forces itſelf upon

upon us. As ſoon as a cavity is expoſed, the atmoſphere communicates with it, and gets almoſt immediately into contact with the blood and living fibre, which ſoon take fire and produce the miſchief complained of.

"How well does this theory apply to the eryſipelatous conſtitution, which is always a ſanguineous one! Such perſons with clear ſkins and crimſon cheeks are particularly liable to inflammation on the ſurface from this cauſe; and, if I miſtake not, I have found them peculiary liable to it when they have quitted the crowded city for the pure air of the country.

"We may alſo obſerve this doctrine confirmed by the ſkin of a newly-born infant, which often very ſpeedily turns almoſt as red as a boiled lobſter. The redneſs may be diſtinctly ſeen coming on in large broad blotches, at laſt all joining in one uniform ſcarlet ſurface. This is partly owing to the blood acquiring a higher degree of animation

from reſpiration, and partly from its ruſhing towards the ſurface of the body to come as nearly as poſſible into contact with the atmoſphere.

THE

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NUMBER XV.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

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SATURDAY, JANUARY 7, 1792.

Quoad vivimus neceſſario ſpiritum de cœlo ducimus.
FERNEL. de Morb. Cauſis, Cap. xiii. p. 369.

IT is upon this theory of the atmoſphere that we are enabled to ſolve one of the greateſt difficulties which has occurred in the natural hiſtory of man.

" As the human body varies in ſize, " ſo it alſo differs in weight; and the

"ſame perſon, without any apparent "cauſe, is found to be heavier at one "time than another. If, after par- "taking of a plentiful repaſt, the per- "ſon ſhould find himſelf heavier, it "would appear in no reſpect extraordi- "nary; but the fact is, the body is "very often found heavier ſome hours "after eating than immediately ſuc- "ceeding it. If a perſon, fatigued with "the toils of the day, eats a hearty ſup- "per, and is weighed on going to bed; "after a ſound ſleep, if he is again "weighed, he will be found conſider- "ably heavier than before; whence "this adventitious weight is derived is "not eaſy to be conceived; the body, "during the whole night, rather per- "ſpiring than imbibing any fluid, "and rather *loſing* than *gaining* moiſ- "ture *."

During a refreſhing ſleep of eight hours, 480 gallons of atmoſpherical air

* Vide Martin's Dict. of Nat. Hiſt. art. MAN. See alſo Buffon.

will pafs through the lungs of a moderate-fized man, the weight of which will amount at leaft to half a pound; part of its fire will enter into combination with the chyle, forming red globules, to be afterwards broken down and decompounded for the purpofe of animal heat, or to be laid up in the form of fat in the cellular membrane, according to the temporary exigencies of the fyftem. And, if the body happens to be in a ftate for imbibing moifture, we may alfo allow a confiderable part of the water, which is feparated from the air by the lungs, to be abforbed by them; nor can any good reafon be affigned why fome part of the fixed air, which in general is left behind, may not be alfo imbibed. The remainder is returned into the atmofphere, in the form of refpired air, which is of courfe well known to be confiderably diminifhed both in weight, bulk, and elafticity.

And here I ſhould ſuppoſe every medical reader will naturally anticipate the ſolution of another difficulty, which muſt have preſented itſelf in contemplating the rapid accumulation of water in thoſe dropſical patients who have moſt rigidly abſtained from drinking every kind of fluid. The atmoſphere, indeed, is the ſource to which every enquirer hath looked for a ſolution of this phenomenon; but, till the true nature of the air was diſcovered, the manner of its combination, and the particular ingredients of which it conſiſts, no ſatisfactory idea could be formed how it was poſſible for that fluid, viz. air, in its pureſt and drieſt ſtate, to contribute to this accumulation, which, I truſt, it is now unneceſſary to point out.

If a doubt ſtill remains in the mind of my readers reſpecting the preſence of fixed heat as a conſtituent part of atmoſpherical air, let him only take notice

notice of the effect of a common blow-pipe in the art of ſoldering metals, &c. "A current of air being thrown into "the flame of a common candle pro-"duces ten times more heat than the "flame of the candle would have "yielded without the aid of the current "of air; but though the heat is en-"creaſed ten times and more, yet the "tallow is not conſumed in the ſame "ratio*." It is worth while, at the ſame

* Vide Exp. Enq. p. 180. It would be uncandid and diſingenuous not to mention, that, previous to the publication of Dr. Harrington's firſt volume, this circumſtance was noticed by Dr. Crawford; and, as it ſeems to be a very ſtriking inſtance of the preſence of heat in atmoſpherical air, it may not be amiſs to take this opportunity of adverting to a circumſtance which, in a manner equally pleaſing, points out the intimate connection betwixt *heat* and *water* in the formation and renovation of the atmoſphere. When a wet cloth is drying before the fire, we have a very familiar inſtance both of the deſtruction and renovation of the atmoſphere; a perpetual current of air is ruſhing to the fire, in which it is decompounded, together with the more ſolid combuſtible materials, giving out actual heat. This heat directly ſeizes the water in the cloth, and elevates it in the form of vapour, which, mixing with the general atmoſpnere, contributes to repair the loſs which it has ſo recently ſuſtained. And it is upon this prin-

ſame time, to obſerve, that pure atmoſpherical air, thrown through the blow-pipe, gives a ſtronger and brighter flame than

ciple that a very eaſy and ſimple mode of preventing the fatal effects of the vapour of charcoal hath been recommended by M. Pia, compiler of the work, entitled, " Précis des Succès de l'Etabliſſement que la Ville de " Paris a fait en faveur des Perſonnes noyées ; huitième " Partie." This method conſiſts ſimply in keeping a broad ſhallow veſſel of water conſtantly heated (boiling no doubt would be better) upon the charcoal which is ſuffered to burn in any apartment. The fact appears to be well aſcertained, though the reaſon is not aſſigned. " En conſéquence, le feu de charbon ou de braiſe étant " d'un uſage journalier et indiſpenſable, parce qu'on ne " peut le ſuppléer d'une manière moins dangereuſe, il " eſt très importante d'avertir à s'il exiſte des moyens " pour prévenir les fâcheux accidens qu'occaſionne ce " chauffage, ainſi que pour les combattre, lorſqu'on ne " les a pas prévenus.

" Ces moyens ſont ſimples, faciles à adminiſtrer, à la " portée de toutes ſortes de perſonnes, ſans en excepter " les moins intelligentes et les moins fortunées ; et, de " quelque façon qu'ils ſoient employés, ils ſont ſuſcep- " tibles de la même efficacité. L'eau la plus naturelle " fournit ce double ſecours ; on obſerve ſeulement de " l'employer de différente manière, ſuivant l'intention " qu'on a, et ſelon la circonſtance dans laquelle on ſe " trouve ; par exemple :

" Pour ne pas courir les riſques d'être ſurpris et " même ſuffoqué par la vapeur qui émane du charbon ou " de la braiſe employées journellement comme chauffage, " ou néceſſités par l'uſage indiſpenſable qu'on en fait " pour differens arts, tels que ceux du cirier, du doreur, " &c. il ſuffit quelquefois de tenir ſur la poële qui con-

" tient

than that which hath been in part decompounded by the lungs, but which, in common experiments, anſwers the purpoſe very well.

We have a ſtrong argument in favour of this theory, in the conſtitutions and habits of thoſe men who are formed with large cheſts. Wherever we can ſay with the poet, " luxuriat toris ani-

" tient ces matières embraſées, une petite terrine, ou un " vaiſſeau quelconque, à large ouverture, rempli d'eau. " En cet état, l'eau *s'échauffe ſeulement* (car il n'eſt pas " néceſſaire qu'elle bouille) ; elle ſe réduit en vapeurs " qui ſe repandent dans la chambre, et ſe confondant " avec l'air de l'atmoſphere, elles en corrigent l'élaſti- " cité, la détruiſent, et l'empêchent d'être auſſi funeſte " qu' il a coutume de l'être en pareilles circonſtances, " lorſqu'on n'a pas pris cette précaution.

" Il ne faudroit cependant pas négliger d'établir dans " la chambre, autant qu'il ſeroit poſſible, un courant " d'air extérieur, proportionné à la quantité de vapeurs " qu'on auroit à redouter, et pour faciliter la ſortie de " l'air élaſtique, tout combiné qu'il ſoit avec les va- " peurs aqueuſes.

" Il n'eſt pas beſoin d'avertir qu'on doit renouveller " l'eau, lorſqu'elle eſt évaporée, et qu'il reſte encore de " la matière de feu dans la poële.

" C'eſt d'après pluſieurs exemples de l'efficacité de " ce moyen qu'on en propoſe l'uſage.

" *Nota.* Il faut rejetter avec le plus grand ſoin les " fumerons qui ſe trouvent dans le charbon ; c'eſt un " bois à demi-brûlé, contre l'effet duquel les vapeurs " humides ſeroient un trop foible remède."

" moſum pectus," I believe we may notice a moderate appetite for food, but a large demand for air. Yet the cheeks in ſuch perſons have generally every mark of the ſanguine or eryſipelatous conſtitution. I am ſo well convinced of this fact, that whenever I paſs a perſon on the road with a broad pair of ſhoulders, if he is an inhabitant of the pure air of the country, and treads with the firm ſtep of a man in good health, I am ſure, on looking back, to ſee a pair of roſy cheeks. We may obſerve the pale, lean, lank, narrow-cheſted glutton often devouring pounds of fat phlogiſtic ſubſtances, and even ſhivering in public company at the ſight of an open window or door, whilſt the other is gaſping and demanding air at every avenue. He who depends chiefly on the mouth for ſubſiſtence will be moſt liable to thoſe diſorders of the ſtomach and bowels which are generally, though often erroneouſly, termed bilious; while the other is peculiarly prone to inflam-

matory

matory complaints, ſuch as gout, eryſipelas, and that fiery diſeaſe, the acute rheumatiſm, &c. There are perſons, who conſtantly appear fat and florid, who may be almoſt ſaid to live on air when compared with others. I would not, however, wiſh to hazard this as a general rule, notwithſtanding it will ſo frequently apply; for where a good appetite for food, and the peculiar ſanguineous temperament, viz. that which in a remarkable manner attracts phlogiſton from the air, are joined, there may be difficulty in aſcertaining the truth of the obſervation.

It might be further urged, that the *pecoræ*, or animals which live chiefly on graſs and other herbs, have much larger lungs in proportion than the *feræ*, or beaſts of prey, that ſwallow very great quantities of fat phlogiſtic animal food: which is contradictory to the idea of the lungs being intended by nature as an organ for diſcharging phlogiſton from the ſyſtem. But every argument

argument of this kind hath been ſummed up by Dr. Harrington, in the inveſtigation of the cameleon, a creature which, even in this country, may be truly ſaid to live on air, as it has often ſubſiſted a whole week on two or three flies, refuſing more; but in warmer climates it has been known to ſubſiſt two months in a cloſe wire cage, without a ſingle fly. "Nevertheleſs, this "animal poſſeſſes all the functions of "life; it has a high degree of animal "heat and ſanguification, with animal "moiſture. Can it be ſuppoſed to re-"ceive theſe from a ſingle fly? Can "this fly, I ſay, give the cameleon ſo "much phlogiſton, that it will not only "ſupport ſuch a degree of heat for "weeks, but that it muſt have lungs in "order to diſcharge phlogiſton, and "theſe lungs too comparatively large "ones, for indeed the cameleon is al-"moſt all lungs? Beſides, if it is phi-"loſophically conſidered, its changing "its ſurface ſo inſtantaneouſly into ſuch

"variety

" variety of ſtrong, lively colours, will " be found owing to its ſurface abound- " ing with phlogiſton, which is ſtill " further proved by its ſometimes giving " light in the dark."

It is in vain to attempt to controvert this argument, by ſaying that the cameleon is a particular animal, and therefore not to be adduced as a general rule. It certainly is a very ſingular animal; but ſtill its exiſtence depends upon the ſame principles as thoſe of other terreſtrial animals, differing only in being adapted by nature to draw its ſubſiſtence more from the air than from any other ſource. Nature is uniform in all her proceedings; and here we obſerve what, according to the theory of Dr. Harrington, we had a right to expect, viz. a much larger apparatus for decompounding the air than what any other known animal is poſſeſſed of. But had the uſe of the lungs been that of diſcharging phlogiſton from the ſyſtem, we may boldly venture to affirm, from the great

regularity

regularity of nature in all her proceedings, that the cameleon would have been formed without lungs; nature making nothing in vain.

THE

MEDICAL SPECTATOR.

NUMBER XVI.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

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M DCC XCII.

THE MEDICAL SPECTATOR.

NUMBER XVI.

SATURDAY, JANUARY 14, 1792.

Quoad vivimus neceſſario ſpiritum de cœlo ducimus.

FERNEL. de Morb. Cauſis, Cap. xiii. p. 369.

"Experiments have been very general; what ſeems moſt wanting is the proper conſtruction of thoſe experiments, and ſome fixed principles to proceed upon."

Preface to Harrington's Thoughts on Air.

IF air is a combination of *water*, *aërial acid*, and *heat* or *phlogiſton*, I believe it will be granted that the growth of all animal ſubſtance depends upon a combination of that heat with chyle, during the proceſs of ſanguification in the lungs.

T When

When we reflect on the extraordinary quantity of phlogiſtic ſubſtances in the body of a bull or a horſe, and contraſt it with the ſimple herbaceous food of thoſe animals, we muſt be convinced that ſomething more than ſuch food is neceſſary to account for the converſion and accumulation. Dr. Harrington juſtly obſerves, "that what enters by the "mouth engages the attention of man-"kind, becauſe it is apparent and ob-"vious to our ſenſes;" but ſurely, if we come to conſider how much larger the apparatus for the reception of air is than that for food, and how much more conſtantly and inceſſantly that air is taken into the ſyſtem than food, we muſt be convinced that the principal part of the proceſs of ſanguification, as the beſt phyſiologiſts have long ſince ſuppoſed, depends upon the lungs; for here the air penetrates into the inmoſt receſſes of the thorax, where it remains ſome time nearly in contact with the blood, from which it returns diminiſhed

both

both in elaſticity, gravity, and expanſion. It is evident, therefore, that it muſt have *communicated* ſomething to the blood, which is immediately conveyed by the pulmonary vein to an organ that has the power of contracting and expelling it to every part of the ſyſtem.

If we maintain that the office of the lungs is to expel phlogiſton *from* the ſyſtem, it is incumbent upon us to ſhew ſome other ſource for the great accumulation of that principle *in* the ſyſtem, in ſhort, ſome other ſource of animalization for the graſs and water; becauſe it is abſolutely impoſſible that theſe can form animal ſubſtance without ſome addition, and we know of none but what proceeds from the air; which indeed is applied in aſtoniſhingly large quantities, and which is well known, as I have juſt obſerved, to be diminiſhed both in elaſticity, gravity, and expanſion, by ſuch application. Every day that a young animal lives, its fat and muſcular

fibres become more ſolid, and more highly charged with phlogiſton; which may be eaſily known by comparing the fat of a calf with that of a bull, the former of which would give out conſiderably leſs actual heat than tallow, if formed into candles.

Can ſo large an apparatus as that of the lungs, with the heart in its centre, be merely neceſſary to diſcharge that phlogiſton, for the *generation* of which we cannot poſſibly account without having recourſe to this very organ?

I flatter myſelf that the various reaſons which have now been adduced will be a proper apology for rejecting the concluſion of a philoſopher whoſe name is deſervedly held in the higheſt eſteem in every part of Europe, for the many and important diſcoveries which he hath made in reſpect to different kinds of air, but who appears to be eſſentially wrong in the application of his own diſcoveries to the animal œconomy, particularly when he aſſerts, "that the air

"in

" in the lungs *acquires* a quantity of " phlogiſton from the blood, which *diſ-* " *charge* of phlogiſton is abſolutely ne- " ceſſary to the continuation of animal " life, and which in time renders the " air incapable of *abſorbing* any more, " and conſequently unfit for reſpiration." I am willing to hope that arguments have been produced which will ſufficiently apologiſe for adopting, with Dr. Harrington, a concluſion in every reſpect the reverſe of the above, viz. that the air in the lungs communicates a quantity of phlogiſton *to* the blood, which communication of phlogiſton is abſolutely neceſſary to the continuation of animal life, and which in time renders the air incapable of affording any more, and conſequently unfit for reſpiration.

But, perhaps, it may now be alledged, that Dr. Prieſtley no longer maintains this idle opinion, which is here objected to. He wiſhes, no doubt, to abandon it. But how has he abandoned it?

Has he not adopted another opinion equally futile and fallacious, viz. that of Dr. Goodwin? who, by experiments both ingenious and elegant, and truly congenial with his own, is *ſuppoſed* to have demonſtrated, that, in the proceſs of reſpiration, that air which has been falſely denominated *de*phlogiſticated, and as falſely believed to be a conſtituent part of the atmoſphere, is attracted into the blood as it circulates through the lungs. Dr. Goodwin's experiments are truly ingenious; but while they afford the moſt irrefragable proofs of the truth of Dr. Harrington's theory, they have given riſe to concluſions which, like moſt of thoſe that have reſulted from the many elegant experiments of this philoſophical age, are vague and ungovernable. This laſt concluſion is particularly ſo. For, if it has been proved by Dr. Harrington that the atmoſphere is an homogeneous fluid, compoſed of fire or phlogiſton *neutraliſed* with the aërial mephitic acid and water, which the

the whole chain of experiments afforded by our moſt celebrated aërial philoſophers confirms, it neceſſarily follows that *de*phlogiſticated air, as it is called, makes no part of atmoſpherical air, and of courſe cannot be communicated by the atmoſphere to the lungs. Dr. Prieſtley, indeed, ſeems to ſee further than this; for he talks of the dephlogiſticated air carrying the phlogiſticated air along with it into the blood. But how very unworthy is ſuch embarraſſed reaſoning of ſo juſtly celebrated a philoſopher! Surely, Dr. Prieſtley can never mean in this manner to creep round to ſomething like an adoption of Dr. Harrington's diſcovery, that phlogiſton is the animating principle afforded by the air to the blood? That indeed would be taking a very curious advantage of the erroneous name of *phlogiſticated* air. Such aſſertions can never tend to the elucidation, whatever they may do to the puzzling and perplexing of a very plain ſubject.

It will be in vain to account in this manner for the various phenomena attending reſpiration. We might with as much propriety ſpeak of the inflammable air, or the nitrous air of the atmoſphere, as of the *de*phlogiſticated. Atmoſpherical air is one thing, *de*phlogiſticated air, as it is called, is another, inflammable and nitrous airs are others. They are all ſeparate and diſtinct things; they are all compound aërial bodies; but they contain a common principle, viz. phlogiſton or aërialized fire, as one of their reſpective conſtituent parts. They vary, however, not only in the proportion which they contain, but in the degree of force with which they retain it. In ſome it is eaſily, in others with difficulty, decompounded. The atmoſphere which contains it in a ſtate of neutralization with the mildeſt of all acids, the mephitic, ſo eaſily and readily parts with this principle, that it is the medium wiſely appointed by Providence for communicating it to animal and vegetable

getable life, and for maintaining a ſteady and uniform combuſtion of inflammable ſubſtances; for without the co-operation of this fluid the more fixed and concentrated phlogiſton of other combuſtible bodies would, in the firſt place, either never have been formed, or, when formed, muſt for ever have remained in a dormant or latent ſtate.

In proportion as aërial fluids are impregnated with phlogiſton, their diſpoſition to burn increaſes or diminiſhes. That which hath been ſo very improperly denominated *de*phlogiſticated air, we are informed by Dr. Prieſtley, burns with an enlarged flame, and with partial exploſions or cracklings, as if it contained ſome combuſtible matter, when a candle is lighted in it. Inflammable air, which contains a much higher impregnation of phlogiſton, inſtantaneouſly conſumes, or rather explodes like gunpowder, being turned in a moment into actual fire and flame, the *water* of compoſition,

poſition, as Dr. Harrington calls it, being only depoſited.

But if, as I have been informed, the erroneous names of phlogiſticated and *de*phlogiſticated airs have taken ſuch firm hold of the minds of any of the readers of this enquiry, that they ſtill find it difficult to emancipate themſelves from the embarraſſments which they occaſion; if theſe unmeaning appellations ſtill prevent them from clearly perceiving that phlogiſton is the animating principle, the *pabulum vitæ*, which the atmoſphere communicates to the blood in the lungs, it ſhall be pointed out in a different manner. Let us take inflammable air, which almoſt every chemiſt will very readily allow to contain a large quantity of phlogiſton; and let us only attend for a moment to a very plain experiment of that excellent chemiſt the late Mr. Scheele, whoſe accuracy and ability no perſon will diſpute. He hath clearly ſhewn us that inflam-

inflammable air may, by laborious reſpiration, be ſo far decompounded and deprived of phlogiſton, as to become injured nearly in the ſame manner as atmoſpherical air, when it has undergone the proceſs of reſpiration. He filled a large bladder with inflammable air, which he could inhale no more than *twenty times*; but having again in ſome meaſure recovered, he again expelled the air from his lungs, and again drew in the inflammable air; after *ten* more inhalations, he was again obliged to leave off, and found that the air was no longer inflammable, nor would it unite with lime water. In a word, it was foul air. "If I am not miſtaken," he adds, "I found myſelf about a quar-
"ter of an hour afterward conſiderably
"warmer." "Here then," Dr. Haring-ton obſerves, "it appears, from the beſt
"authority, that inflammable air was
"breathed, and left in the ſame ſtate as
"if common air had been breathed,
"viz. foul air." I would add, is it poſſible

poſſible for any chemiſt whatever to doubt one moment, after reading this quotation? or is it neceſſary to ſay further, that, had animal life depended upon a diſcharge of phlogiſton from the lungs, fixed air, which is almoſt inſtantaneous death to every living creature, would have been better calculated for reſpiration than any other aërial fluid that we are acquainted with?

But I will treſpaſs no longer, by the production of arguments upon this ſubject; for I think it muſt be evident to every unprejudiced enquirer, that phlogiſton is the animating principle of the atmoſphere; and that the *poſſibility* of reſpiring either inflammable or *de*phlogiſticated air, as it is called, depends upon theſe airs being impregnated with that principle in common with atmoſpherical air.

The idea that *de*phlogiſticated air, as it is called, forms a vital part of the atmoſphere, is not merely an error in language; it is an error which will be found

found greatly to affect a conſiderable part of the ſcience of modern chemiſtry, and has given riſe to numerous miſtakes in accounting for the appearances which take place in a variety of chemical proceſſes. Whoever reads Dr. Goodwin's experiments, after attending to the Harringtonian theory of the atmoſphere, muſt be convinced that wherever Dr. Goodwin appears to demonſtrate the attraction of *de*phlogiſticated air from the atmoſphere by the blood, he in fact demonſtrates the attraction, not of *de*phlogiſticated air, but of one of the component parts of atmoſpherical air, viz. phlogiſton, which is alſo a component part of what has been ſo very improperly denominated *de*phlogiſticated air.

So long as the generality of readers will remain ſatisfied with this explanation of the conſtituent principles of the atmoſphere, viz. that it conſiſts of phlogiſticated and *de*phlogiſticated air, ſo long Dr. Prieſtley's theory of reſpiration, though involved in error and obſcurity, may

may avoid compleat detection. A kind of evaſive ſalvo will be afforded, and the Doctor may eſcape the mortification of a defeat on a ſubject where the world has given him credit for ſuch conſummate ſkill and knowledge. But theſe are trifling and individual concerns. Science knows no reſpect of perſons; her ſteps are progreſſive, notwithſtanding they are ſo frequently clogged by the deference and reſpect which is paid to eſtabliſhed reputation. How much more conſiſtent would it be with true candour and philoſophy, if the Doctor would fairly and openly examine into the merits of Dr. Harrington's theory! in which he will find his own name and his own experiments repeatedly appealed to, and treated with the higheſt honour and reſpect, notwithſtanding the deductions which are drawn from them are ſo very different from his own. If he would attend to this theory, he would ceaſe to conſider *de*phlogiſticated air as the principle of acidity, and would immediately

mediately discover the whole chain of chemical error which is connected with this idea. At present I will mention one only which relates more immediately to the animal œconomy. Dr. Priestley can be no stranger to this fact, that the chyle, particularly of ruminating animals, is of an acescent quality. He must also know that when this chyle becomes blood, by passing through the lungs, it loses its acescent tendency, that red globules are formed, phlogistic substances, from which the volatile alkali may be evolved, and inflammable air, produced. And this extraordinary change must take place from an attraction *of the principle of acidity!* Such are the inconsistencies to which philosophical chemistry will be exposed, so long as the Harringtonian theory is passed over with neglect. But I hope, when the distinctions which have been pointed out in this paper are properly attended to, philosophers will feel the advantage

which that theory is capable of communicating to the ſcience of chemiſtry.

Mr. Lavoiſier, and the other French philoſophers, appear to have been for a conſiderable time aware of the improper denominations of phlogiſticated and *de*phlogiſticated air, and have accordingly given them new names, agreeable to ſome novel ideas which they entertain reſpecting the nature of air; but we ſhall find, as we proceed further in this enquiry, that, notwithſtanding the very great propriety of the term *azote*, when applied to what we ſo very injudiciouſly denominate phlogiſticated air, that in reſpect to their *oxygenous* gas, or principle of acidity, and their opinion that the acids are compounded of the different kinds of air, together with all the other deceptions to which this opinion leads, they too are involved in the ſame errors which ſo many of our moſt eminent chemical philoſophers at home have adopted.

*** Am-

*** AMBULATOR objects to Dr. Harrington's theory, and puts this queſtion to the Authors of *The Medical Spectator:* "If atmoſpherical air con-
"ſiſts of fire, fixed air, and water, whence comes
"it that reſpired air riſes up into the higher re-
"gions of the atmoſphere, when fixed air is well
"known to be much *heavier* than atmoſpherical
"air?" AMBULATOR, however, ſeems to forget that this is not an objection to Dr. Harrington's *theory*, nor to Bergman's, nor Scheele's, nor Lavoiſier's, nor indeed to any *theory*; it is an objection to a plain matter of fact, viz. that reſpired air does contain fixed air. We will, therefore, venture to ſay, that ſo very obvious and ſo *weighty* an objection cannot have eſcaped the obſervation of the Writer of this Paper; and we have no doubt but that in a future number (for we are promiſed a paper on the ceſſation of life) he will give it a ſatisfactory reply.

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THE MEDICAL SPECTATOR.

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SATURDAY, JANUARY 21, 1792.

Quoad vivimus neceſſario ſpiritum de cœlo ducimus.
FERNEL. de Morb. Cauſis, Cap. xiii. p. 369.

——— *omnis et una*
Dilapſus calor, atque in ventos vita receſſit. VIRGIL.

BEFORE we ſpeak of the different modes in which

THE CESSATION OF LIFE

takes place, it may not be improper to recapitulate in a few words the general principles which have been already delivered.

The ſun has been conſidered as the grand ſource from which this globe is ſupplied with heat; of which a regular propagation hath been traced, from the rays of light to a combination with water in the production of fluidity; with water it hath been obſerved that it penetrates the inmoſt receſſes of the globe, or riſes in the act of evaporation to the higher regions of the atmoſphere. It hath alſo been ſhewn that it enters in large quantities into the animal and the vegetable creations; from which it may be again obtained in new ſources of heat and light. The atmoſphere has been conſidered as conſiſting entirely of water and fire, or phlogiſton, in a ſtate of neutralization with the aërial mephitic acid. Putrefaction, combuſtion, and the reſpiration of animals, have been regarded as ſo many decompounding proceſſes, by which the fire and the other component parts are in a great meaſure ſeparated. Dr. Harrington's theory teaches us, in the moſt ſatis-

factory

factory manner, that the fire combining with the chyle forms FLORID RED BLOOD, from which the animal is supplied with nutriment, and the ultimate fibre, by some subsequent operation of the system, either extended, or its daily waste recruited. The red globules, gradually decompounded in the course of circulation, give out ninety-six degrees of sensible or actual heat, by which they are dissipated. When a greater degree of heat is excited, digestion impeded, or food abstracted, we observe the fat to be re-absorbed and decompounded in proportion to the additional heat or abstraction of food.

This theory shews that phlogiston not only contributes largely to the accumulation of solid substance in the animal system, but also to one of the most striking characteristics of animal life, viz. *vital warmth*; and brings philosophers back to that idea which prevailed from the time of Hippocrates till the last twenty-five years, viz. that the air

affords a *pabulum vitæ* to animals, which, when duly conſidered, muſt evidently appear to be latent or neutraliſed heat, or what has been with equal propriety denominated the principle of inflammability, phlogiſton, or, in one word, fire.

This principle, however, cannot be conſidered as life itſelf, but that upon the preſence of which the motion and excitement of life depend; for it is well known that life exiſts both prior and poſterior to reſpiration; but it exiſts in theſe caſes under a ſuſpenſion or deprivation of ſome of its moſt important functions; and, from the firſt moment of its exiſtence till it is endowed (and indeed after it is endowed) with this remarkable property, requires the aid of *borrowed* heat in one ſhape or other.

Every perſon muſt have obſerved how nearly the human frame approaches to a ſtate of diſſolution in the *deliquium animi* conſequent upon hemorrhage. And it is, I believe, a very general opi-

nion that this is occaſioned by a diminution in the tenſion of the brain. Such at leaſt was the opinion of the late Dr. Cullen, which I believe met with almoſt univerſal approbation; an idea ſuppoſed to be confirmed by a patient ſo ſoon recovering upon being laid in an horizontal poſition. It is with much diffidence that I venture to offer a different explanation. The tenſion of the brain cannot be greatly altered or reſtored by the gentle declination of the body, which often immediately gives relief*; but upon ſuch declination the blood will return with more facility from the lower extremities to the heart, and that blood which was already in the right ventricle will paſs on towards the lungs with greater eaſe; in conſeqnence of which we generally directly obſerve a deep inſpiration, the eyes open, and the countenance is re-animated; that

* Even laying the legs up upon a chair will very often be ſufficient to prevent fainting during veneſection.

neceſſary principle which the air diſpenſes *to* the blood in the lungs is communicated, and the functions of life return. There is reaſon to believe, from actual experiments, that the heart entirely refuſes to beat within a few minutes after reſpiration ceaſes; and if it hath ever been found in a ſtate of pulſation under the knife of the executioner or of the anatomiſt, it is perhaps in conſequence of the application of air.

Of the powerful effect of actual or ſenſible heat, as a ſtimulus to the heart, we have a very ſtriking inſtance in Lord Verulam's "Hiſtory of Life and Death," p. 559; who ſays, "that, upon "the emboweling of a criminal, *he* had "*ſeen* the heart of a man, after it was "thrown into the fire, leap up for ſe-"veral times together, at firſt to the "height of *a foot and a half*, and then "gradually lower, to the beſt of his "memory for the ſpace of ſeven or "eight minutes."

Ani-

Animals are deprived of life, in all caſes of ſuffocation, from the want of that neceſſary agent phlogiſton being communicated to the lungs.

In caſes of hunger, perhaps, death takes place from the want at laſt of freſh chyle to attract and neutraliſe the phlogiſton of the air.

In fevers, the nervous ſyſtem is materially concerned; yet where they terminate fatally may it not ſometimes be owing to the digeſtive faculties being deſtroyed, and chyle ceaſing to be formed, and of courſe this principle no longer attracted from the atmoſphere?

I can conceive that in extreme old age death may enſue from a ſimilar cauſe; or ſuppoſe, with Dr. Harrington, that at laſt, from rigidity of the fibres of the membrane of the lungs, there may be a gradual obſtruction to its admiſſion.

Life, however, may ceaſe from a variety of cauſes, which convince us that the principle of inflammability, or heat,

is only an exciting ſtimulus to ſome other power ſtill unknown. Perhaps the principle of inflammability, as diſpenſed to animal life by the atmoſphere, is the *ne plus ultra* of our inveſtigation of the material part of human exiſtence. Whatever it is that actuates the brain, ſpinal marrow, nerves, and muſcular fibres, giving origin to ſenſation and thought, we know that its power, as far as the body is concerned, may be deſtroyed from cauſes which convince us that reſpiration and the attraction of phlogiſton from the air, however intimately connected, are but ſecondary cauſes of life. How death is ſo ſoon occaſioned by a mortification in the bowels or the leg is not well underſtood, any more than why a cambrick needle penetrating the brain, or *medulla oblongata*, ſhall inſtantaneouſly kill. Paſſions of the mind, convulſions, mineral, vegetable, and animal poiſons, all act upon the living principle in a manner, perhaps, independent of reſpiration. But

that

that ſudden death which takes place from a ſtroke of lightning convinces us how intimately life is connected with the preſence of the principle of inflammability in the arterial ſyſtem; for there are caſes now on record, where, from ſtrokes of lightning, life, or rather the functions of life, have been merely ſuſpended. And may it not be conceived that the effect takes place from that active principle inſtantaneouſly combining with, and carrying off, the whole quantity of animating fire preſent in the arterial ſyſtem? becauſe, if it acted more immediately upon the brain and nerves, irrecoverable palſy or apoplexy, or total extinction of life, muſt be the conſequence. But where the powers of life are only ſuſpended by lightning, it is reaſonable to ſuppoſe that the ſtroke hath been ſlight, ſuch perhaps, to reaſon from analogy, as for a time, without diſarranging the texture of their fibres, can deprive trees of their vegetating power. In ſuch caſes may it not be conceived,

conceived, as I have juſt obſerved, that it combines with, and carries off, the animating fire tranſiently preſent in the *crimſon* blood of the arterial ſyſtem*? But when the full force of lightning is diſcharged upon the body, it acts upon the fixed and ſolidly combined phlogiſton, producing ſometimes a ſhockingly lacerated ſpectacle, in the ſame manner as it diſſolves ſolid metals, or ſhivers the

* "*Arterial* blood is the life and ſpirit of mankind." Vid. Dr. Dover's "Laſt Legacy," p. 115.

"But if we put blood to the teſt, it is not ſo; by heating it becomes red, and by adding phlogiſton to it it becomes red. We are not in this trial to take the blood which nature has made red with her own ſaturation of phlogiſton (we cannot add to her proceſs); we are rather to take blood that is bereft of phlogiſton, black blood."—"Inflammable air, which every one acknowledges poſſeſſes a large quantity of phlogiſton, by being expoſed to black blood, is abſorbed by it ſo as to loſe its inflammability, and the blood turns red. Now let us examine the red blood. By expoſing it to injured air, or foul air, it turns black; and Dr. Prieſtley mentions an inſtance where the air became better, and was diminiſhed after it by nitrous air. The application of fixed air to blood equally turns it black. In ſhort, all phlogiſticated bodies, oils, ſpirits, ſalts, &c. turn black blood red. All acids, and other dephlogiſticated bodies, even water, turn red blood black; nay, blood turns black *in vacuo*, where no phlogiſton can get to it." Vide Harrington's "Thoughts on Air," pp. 93, 94.

largeſt

largeſt trees. In the ſlighter caſes which admit of remedy, the cure has been effected by modes of practice which tend to communicate phlogiſton to the blood, ſuch as artificial reſpiration, and a long continued application of brooding warmth and friction.

But poſſibly the effect of phlogiſton or heat in exciting the living power may be better and more diſtinctly explained by conſidering it in a partial inſtance. When the circulation is ſo languid, that a ſurgeon is ſcarcely able to procure a diſcharge of blood from a vein in the back of the hand, the application of warmth almoſt inſtantaneouſly excites a briſker flow; an effect which muſt be produced by the warmth ſtimulating that portion of the ſentient principle or living power locally and partially reſident in the hand, for the pulſations of the heart are neither quickened nor rendered more powerful; nor is the force of the circulation in the oppoſite hand encreaſed, but only that in the part immediately

mediately ſubjected to the ſtimulus of warm water. And in every inſtance of this operation (where warm water hath been applied), whether the caſe is inflammatory or otherwiſe, the blood, as it immediately flows from the vein, has the bright crimſon colour of arterial blood, on which I conceive the encreaſed action in the veſſels to depend. I cannot heſitate, therefore, to adopt the opinion of Dr. Harrington, that this colour is occaſioned by the preſence of an unuſual portion of phlogiſton or animating fire. And if we contemplate another inſtance of partial excitement, this will perhaps be rendered ſtill more evident.

In the phlegmonous inflammation we obſerve an unuſual ſtimulus, a gradual tumefaction, tenſion, and redneſs; the powers of life appear to be increaſed in the part in an uncommon manner; it burns and throbs till ſenſation is quickened or encreaſed to the moſt painful degree that human patience or fortitude is capable of ſupporting. There

is

is an accumulation of blood in the part, and that blood is now undergoing a rapid decompoſition in the production of an intenſe degree of animal heat, which at laſt, together with the pain and tenſion, in a great meaſure ſubſides; and, when the decompoſition of the blood is compleated, we behold a depoſit of pus or matter nearly reduced to the original ſtate of chyle, which in ſome caſes we obſerve as mild as cream, and actually curdled.

An attention to the different modes of practice in ſuch caſes will alſo confirm our ideas of phlogiſton. In a phlegmonous inflammation, ſuch as we have juſt deſcribed, if copious bleeding hath been timely uſed, and cold water inceſſantly applied, the decompoſition is either entirely or in a great meaſure checked, and a benign termination or reſolution takes place; but if, on the contrary, warm applications are made uſe of, a larger quantity of blood will be ſolicited to the part, the powers of

life

life will be urged and encreaſed, and the decompoſition will go on till the ſolid fibres will partake of it, and till the integuments in different places will be deſtroyed the ſame as if actual fire had been applied; a partial mortification will enſue; the cellular membrane, poſſibly the tendons, and a portion of the perioſteum, may ſlough away, the bones exfoliate, and perhaps at laſt the limb be condemned to amputation. I appeal to the recollection of every practical ſurgeon, if this is not a true and faithful deſcription of what hath paſſed under his own obſervation.

But to return to the ſubject of the atmoſphere, and its relative connection with animal life, as exemplified in the proceſs of reſpiration; it will hardly be neceſſary to add, that the various phenomena, and the various arguments, which have been brought forward in this and ſome of the preceding papers of the MEDICAL SPECTATOR, in the opinion of the writer of thoſe papers, may

may enable ſome of the readers of this work to give a ſatisfactory anſwer to one of thoſe queſtions, which the Humane Society, with ſo much wiſdom and propriety, hath propoſed as the ſubject of their prize diſſertation for the year 1792, viz. "What is the proximate cauſe of death in the various "kinds of ſuffocation?"

If the arguments which have been adduced in theſe papers, reſpecting the formation, deſtruction, and renovation of the atmoſphere, are well founded, the writer cannot heſitate to pronounce, conformable to the Harringtonian theory of reſpiration,

THAT THE PROXIMATE CAUSE OF DEATH, IN EVERY INSTANCE OF SUFFOCATION, MUST NECESSARILY DEPEND UPON THE WANT OF A CONTINUED APPLICATION OR ATTRACTION OF PHLOGISTON, AS ONE OF THE CONSTITUENT PARTS OF THE ATMOSPHERE, TO ANIMATE THE BLOOD IN THE LUNGS, AND TO GIVE IT THE PROPERTY OF STIMU-

LATING

LATING AND EXCITING THE ACTION OF THE HEART.

Having thus ventured to give an anſwer to the firſt important query, I will take this opportunity of congratulating that ſociety on the very great and unexpected ſucceſs with which their endeavours have been crowned in the reſtoration to the functions of life of ſo many uſeful members of the community. It is not the buſineſs of the writer of this paper, nor, after the excellent treatiſe of Mr. Coleman, does he feel himſelf qualified to attempt to give an anſwer to the ſecond part of their enquiry, viz. "what are the moſt judicious "means to be employed to reſtore ani-"mation?" He will, therefore, only take the liberty of calling their attention to a circumſtance which is of a very important nature, and which does not yet appear to be clearly and diſtinctly underſtood.

The directions of the Humane Society have a tendency to deter practitioners from

from the uſe of the lancet, which, on the contrary, a diligent attention to the ingenious eſſay of Mr. Kite on this ſubject equally tends too much to encourage. Would not the following ſhort direction guard againſt both extremes, viz.

The lancet ſhould not be uſed when the countenance is pale and contracted. But when the face is ſwelled, the lips and cheeks livid or purple, or black, and the eyes begin to be red and inflamed, bleeding may then be advantageous; but even in this caſe it ſhould not be too ſpeedily had recourſe to, as this accumulation of blood in the face muſt always be regarded as a proof, that the vital powers are ſtruggling within to reſtore the circulation, which may certainly be aſſiſted by a moderate bleeding, if the ſtruggle continues too long. But is it not probable, even in this ſituation, that ſprinkling the face with cold water would cauſe the blood to ruſh with a degree of *impetus* toward the heart, ſo as to force its way into the general courſe

of

of circulation, at leaſt through the lungs, where it is to come within the ſphere of attraction of the vivifying principle communicated by the atmoſphere? It is in this way only, I believe, that we can account for its inſtantaneous good effect in ſome convulſions where the face is turgid and blackened.

Theſe hints are ſubmitted to the attention of thoſe gentlemen who may have been engaged in the taſk of writing diſſertations on the ſubject which is here alluded to. In the next paper this enquiry into the general diſtribution of heat through the different objects of nature will probably be concluded, under the form of a letter to Dr. Harrington, pointing out in a few words ſome of the imperfections of Mr. Lavoiſier's and Dr. Crawford's theories of the atmoſphere; and in which will alſo be given an anſwer to the query which appeared at the concluſion of the laſt number of the MEDICAL SPECTATOR.

THE

MEDICAL SPECTATOR.

NUMBER XVIII.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

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THE MEDICAL SPECTATOR.

NUMBER XVIII.

SATURDAY, JANUARY 28, 1792.

Dum miſer obſcuris animo trepidante cavernis
Incertas ſcrutatur opes, tu ſcandis in altum
Ad cœlos meditatus iter; liquidaſque per auras
Aëreum immenſum, VERISSIME, *detegis orbem.*

Addreſs to MAYOW, by C. T. Fellow of All Souls College.

For me, who ſcarcely venture to aſpire
To catch a ſpark of thy celeſtial fire,
Entitled to no praiſe from works of mine,
I graſp at fame by celebrating thine.

Dr. CRANE'S Addreſs to Dr. AIKEN.

To Dr. HARRINGTON.

"Sir,

"ACQUAINTED with you only through the medium of your writings, permit a ſtranger thus publickly to apologize, not for the taſk which has been

undertaken, but for the imperfect manner in which that taſk has been executed. It is now upwards of three years ſince the papers which have thus been preſented to the publick were firſt drawn up; and ſince that time, diſregarded by the writer, they have circulated through ſeveral hands. They give a very ſlight view only of your arguments and illuſtrations, but, it is preſumed, they will excite the attention of the publick to a cloſer examination of your volumes; in which, however irregularly the different materials may be diſpoſed, a valuable mine, replete with the ſterling ore of chemiſtry, will be found. I could ſay much by way of apology for the attempt which has been made; but why ſhould I apologize? Your works are now the property of the publick, and conſequently open to public inveſtigation. In them I have long perceived the workings of an ardent and generous mind, labouring to ſtem a torrent of innovation, of error,

and

and confuſion, which, "under the ſanc-"tion of great names and pompous "experiments," have overturned, or rather attempted to overturn, the firſt principles of chemiſtry; and I think I have at the ſame time perceived on the part of ſome of your opponents (if I miſtake, I am ſincerely ſorry for the ſuggeſtion) an unworthy attempt with one hand to depreſs your reputation, with the other, ſecretly and ſilently to adopt your opinions.

The doctrine of phlogiſton, which rendered the name of *Stahl* ſo deſervedly celebrated, you ſhew to be the rock upon which the ſuperſtructure of every chemical theory, if it is intended to be durable, muſt ſtill be raiſed; but of late we have ſeen, by a variety of ſtrange and wonderful exploſions, this rock attempted to be undermined, and new theories every day erected on different ground. In ſhort, almoſt every philoſopher now has a theory of his own; the ſcience of chemiſtry, no longer a

regular and uniform ſtructure, but ſcattered and diſmembered in a variety of beautiful and unconnected ornaments, is as much buried now in the rubbiſh of Experiment as it was formerly overrun with the abſurdities of Alchemy.

Nor will it appear extraordinary that this revolution in reſpect to the doctrine of phlogiſton ſhould have taken place, if we reflect but a moment on the ſtrange and contradictory ideas which philoſophers have entertained of that principle. M. Lavoiſier, I believe, was the firſt who boldly ventured to deny its exiſtence; and his opinion muſt doubtleſs have gained ground, when Dr. Prieſtley, ſo unfortunately for the ſcience of aërial philoſophy, at an early ſtage of his career, imagined this principle, which he at firſt judiciouſly adopted from Stahl as a pure element, was imbibed by atmoſpherical air during the proceſſes of reſpiration, combuſtion, and putrefaction. If air from having ſomething added to it is leſſened in quantity,

quantity, in weight, in elaſticity, and in all its uſeful and eſſential properties, it muſt naturally ſuggeſt or confirm an opinion that that ſomething is either an imaginary or a very deſtructive principle. Although Dr. Prieſtley was wrong in this part of his theory, he was perhaps nearly right at his firſt outſet, in ſuppoſing that fixed air during theſe proceſſes was precipitated from the atmoſphere. But this being combated, he yielded to the original and erroneous opinion of Dr. Black, that atmoſpherical air, attracting phlogiſton, became fixed air by the union.

It muſt be evident to every one who examines yours and the other modern theories of reſpiration, that in one reſpect they all agree, viz. that the atmoſphere is the ſource from which animal heat proceeds, an opinion that I believe will now be in general admitted as an incontrovertible fact. They differ, however, not only in the manner in which that heat is preſent in the at-

moſphere, but in the mode of its communication to the blood. Dr. Black, from his experiments and his reaſoning on the ſubject of latent heat, may with propriety be called the father of every ſubſequent theory of reſpiration.

Dr. Crawford, ſuppoſing the atmoſphere to contain heat or fire upon the principles of vapour, agreeable to Dr. Black's theory of latent heat, and at the ſame time adopting a very extraordinary opinion, which you have refuted, that there is a repulſion ſubſiſting betwixt heat and phlogiſton, is of opinion that, as the venal blood returns highly impregnated with phlogiſton, the attraction of the air for this imaginary phlogiſton is greater than that of the blood, in conſequence of which it muſt leave the blood to combine with the atmoſphere; and hence the air is under the neceſſity of depoſiting a part of its heat. He has made a variety of experiments to ſhew that different bodies have different capacities for containing heat. That of the

the blood he thinks is encreaſed by the ſeparation of phlogiſton, and of courſe ſuppoſes that this imaginary ſeparation muſt immediately give the blood a diſpoſition to combine with that heat forced from the atmoſphere by the repulſion of phlogiſton. He ſuppoſes arterial blood to attract phlogiſton during the general circulation, that venal blood returns impregnated with it, and with diminiſhed capacity for retaining heat; conſequently the blood which had loſt its heat during reſpiration regains it during circulation, and gradually gives out that heat which it had received from the air; or, in fewer words, he believes that the blood during reſpiration diſcharges phlogiſton and receives heat, but during circulation receives phlogiſton and diſcharges heat.

Confuſed and inconſiſtent as this theory, thus ſtripped of its meretricious ornaments, may appear to thoſe who have attended to the harmony and ſimplicity of yours, if they will give them-

ſelves the trouble to peruſe it as dreſſed out in all the pompous attire of experimental deluſion, algebraical calculation, and argumentative deduction, which the ingenuity of its learned author diſplays, they will not be ſurprized at the celebrity it has obtained.

M. Lavoiſier, and the other French philoſophers, to rid themſelves at once of the perplexities attending the Proteus called phlogiſton, boldly aſſert that there is no ſuch body. They ſuppoſe that the atmoſphere conſiſts of two diſtinct airs, viz. *pure* and *impure*, or, as they term them, *oxygenous gas* and *azote*; but they are under the neceſſity of ſubſtituting another body, calling it *carbone*, a fabrication of M. Lavoiſier's, and, like the phlogiſton which Dr. Prieſtley and Dr. Crawford ſuppoſe to be ſeparated from the blood during reſpiration, entirely an imaginary one. They likewiſe ſuppoſe that pure air and inflammable air produce water; and that the blood being full of this charcoal or carbone,

bone, it is conſtantly attracted by the pure air during reſpiration, and that in this manner fixed air is formed. They ſuppoſe farther that a part of the pure air attracts inflammable air from the blood forming water, and, agreeable to Dr. Crawford, that the *caloric* which the air poſſeſſes is imbibed by the blood.

I ſincerely hope I have not miſrepreſented this heterogeneous jumble of opinions, which, as you have ſomewhere ſaid, can have originated only in their rudiments being erroneous, and having no juſt conception of air, or its principles. Can we be ſurprized to hear philoſophers, who are capable of adopting ſuch inconſiſtencies as theſe, talk of heat, from its repulſive property being contained in the atmoſphere like water in a ſpunge? or our own aërial philoſophers, improving on the idea, gravely tell the Royal Society that the ſpunge may be *ſqueezed?*

When theories like the above are adopted in Great Britain, need we wonder

der to hear our teachers of chemiſtry telling their reſpective auditories that the atmoſphere conſiſts of one part pure air, two parts *de*phlogiſticated, and ſeven of phlogiſticated air? that the mephitic acid, together with duſt or ſand, myriads and myriads of living inſects, and various other heterogeneous particles, are looſely floating in it? and then, with a degree of ſolemnity worthy of a wiſer deduction, call their particular attention to this *aſtoniſhing* phenomenon, that all the rivers, lakes, and oceans, in the univerſe, are formed from this elaſtic imperceptible fluid? and, finally, as an experimental proof, complete the abſurdity by *μαχινγ* water in the preſence of their pupils? I ſay *making*, for ſuch they have actually called a depoſition of the water of compoſition, when *de*phlogiſticated and inflammable airs have been decompounded and reſolved into their original principles, *fire* and *water*, and ſometimes an *acid*, according to the ſlowneſs or quickneſs of the

the combuſtion, and other circumſtances which you have pointed out.

" It is now upwards of ten years ſince your firſt publication appeared, entituled, " A philoſophical and experi- " mental Enquiry into the firſt and ge- " neral Principles of animal and vege- " table Life, likewiſe into atmoſpherical " Air; with a minute Inveſtigation of " the different ſecondary Principles at- " tendant upon each, viz. animal Heat, " Sanguification, animal Moiſture, Age, " Temperament, &c. &c. &c. With " a Refutation of Dr. Prieſtley's Doctrine " of Air; proving, by Experiment, that " the breathing of Animals, Putrefac- " tion, &c. do not phlogiſticate, but de- " phlogiſticate the air; and that the " Office of that eſſential Organ, the " Lungs, is not to diſcharge phlogiſton " to the Air, but to receive it from the " Air." In your preface to this work you aſſert that you had it ready for publication above four years before, and that you had actually waited on Mr. Cadell

dell for that purpoſe, but had been prevented.

You ſuppoſe that phlogiſton is fixed fire, that acids, earth, and water, are the bodies with which it principally forms an union; and that theſe form what chemiſts call phlogiſtic bodies, ſuch as oils, bitumens, &c. You ſhew that alkaline ſalts are principally fixed fire, concentrated by acids, water, and earth; that ſulphur is fixed fire and the vitriolic acid; and that the atmoſphere is formed of fixed air, water, and fire, all *neutralized* together. You call the water the water of compoſition *, as it is called by chemiſts

* This is the idea which runs through the whole of Dr. Harrington's theory of the atmoſphere; but it is no where more ſtrongly expreſſed than in p. 321 of his "Thoughts on Air," publiſhed in 1785.

"It is well known to chemiſts that in forming a "neutral ſalt there is a quantity of water imbibed by the "ſalt, called by them the water of compoſition. In "moſt of the productions of nature we find acids and "alkalis united together as neutral ſalts, viz. the ſalts "of the ſea and the ſalt of nitre, &c. Nature has in "the firſt inſtance formed the marine acid and an alka-"leſcent ſalt, with a quantity of water, into a neutral "ſalt. Here is an obvious fact in neutralizing acids and "earths,

chemiſts in general, when they ſpeak of the chriſtallization of neutral ſalts. You have clearly and expreſſly aſſerted that water makes a part of every ſpecies of air. You have proved the atmoſphere to be one homogeneous fluid formed of the bodies already mentioned, only that one part of the air is more highly ſaturated with fire than another part; that diſtilled water will imbibe the more highly ſaturated or richer part, leaving the poorer; but upon its being expelled from the water it will again unite with the poorer, and become the

" earths, or alkaline ſalts, that there is a quantity of " water neceſſary to form the compoſition, called with " propriety by chemiſts the water of compoſition.

" Then, as Nature neutralizes fixed air and the fire of " the ſun into reſpirable air, ſhe will likewiſe form a " quantity of water into this neutral compoſition. This " is a fact we are certain of, that water is required to " form theſe two bodies into reſpirable air. And like- " wiſe nitre will produce more of this air than an equal " quantity of the cauſtic alkali and the ſtrong nitrous " acid, as there wants the water of compoſition; not " but there is ſome both in the ſtrongeſt acid and moſt " cauſtic ſalt. Therefore we ſee the natural concluſion, that " there will be a quantity of water in all airs of Nature's " production, which may be called the water of com- " poſition."

ſame

ſame as it was at firſt. Upon the air being breathed by animals, you teach that the blood, agreeably to the chemical table of elective attractions, will decompound it, taking from it part of its ſoluting principle, the fixed fire, forming red globules. In conſequence of the loſs of part of this ſoluting principle, a portion of the fixed air and water* become

* The fire, or ſoluting principle, being in part attracted by the blood, the air is returned into the atmoſphere in a ſtate approaching to that of vapour, as may be diſtinctly ſeen in a froſty morning; and conſequently *riſes* upon the ſame principle as vapour, till it has regained its proper portion of fire, when, being reſtored to the complete and perfect ſtate of atmoſpherical air, it *re-unites* with the atmoſphere into an homogeneous fluid. When it is expired from the lungs, a part of its ſoluting principle having been attracted by the blood, a portion of the fixed air becomes ſo far detached as to admit of a junction with lime in lime water, as ſhewn in the celebrated experiment of Dr. Black. It is not once however, nor twice, nor ten times breathing of common air, that can totally deprive it of its fixed fire; but when it is no longer reſpirable by man, it may be ſtill further decompounded by the reſpiration of various inſects and reptiles, and by chemical proceſſes, till, like common fixed air which riſes from alkaline ſalts, it will become heavier than the atmoſphere; and when either atmoſpherical or *ae*phlogiſticated air has thus been decompounded, and brought down to the ſtandard of fixed air, Dr. Harrington's

become immediately ſenſible in the expired air, while that part of the air which is not ſo highly ſaturated is expired unchanged.

What

rington's theory will admit of a new illuſtration, for it ſhews that ſuch air may be reſtored by art to as high a ſaturation of fire as *de*phlogiſticated or even inflammable air. But I will refer thoſe who wiſh to enquire further into this ſubject to his "Letter to Dr. Prieſtley, Meſſrs. "Cavendiſh, Lavoiſier, and Kirwan, endeavouring to "prove that their newly-adopted Opinions of inflam-"mable and *d*ephlogiſticated Airs forming Water, and "the Acids being compounded of the different Kinds "of Air, are fallacious," dated March 10, 1788. In regard to the particular objection, why fixed air and water, which are the moſt ponderous of the aërial ſubſtances, ſhould riſe into the higher regions of the atmoſphere, perhaps the writer will be ſatisfied when he recollects that much more than one hundred thouſand tuns of *water*, which is at leaſt fifty times heavier than fixed air in its moſt *condenſed* aërial ſtate, are riſing every hour from the ſurface of the ocean into the ſuperior parts of the atmoſphere. After elevating ſo many thouſand tuns of *water* in ſo ſhort a ſpace of time, we may venture to take *fixed air*, which is ſo many degrees lighter, on a ſmaller ſcale. And, as the bottle and glaſs in this age of experimental intoxication will be much more readily attended to than the cloſeſt reaſoning, I will adviſe AMBULATOR to try the following experiment. There are few, I believe, of the readers of this paper but who are in poſſeſſion of Mr. Parker's glaſſes for impregnating water with fixed air. Let the middle glaſs be filled (from an efferveſcence excited by vitriolic acid, chalk, and water, in the inferior glaſs) with fixed air. After proving that it is filled, by a lighted wax taper being extinguiſhed in it the ſame as if dipped into water, let the bottom of this middle glaſs

What particularly corroborates this elegant theory is the deciſive proof which you have mentioned, that expired air, when expoſed to the rays of the ſun, recovers all the properties of perfect atmoſpherical air; or that well-known experiment of water ſaturated with fixed air, forming atmoſpherical air by expoſure to the ſun.

But if we advert to the changes which take place in the blood; that fluid, after air is inſpired and expoſed to the ſurface of the lungs, becomes *red* and *truly* phlogiſticated, exactly the ſame as if alkaline ſalts, oil, or other phlogiſtic bodies, were added to it, or, as if it had been expoſed to the rays of the ſun. From you we learn that this

be put into its wooden receptacle, together with a proper quantity of quickſilver, to prevent the poſſibility of a cavil; I mean that the fixed air may not be able to ſink through the capillary tubes. Let this middle part of the machine, containing five pints of fixed air, with an aperture at its top of only an inch in diameter, be placed in a cloſe apartment one night, or one hour, in the open air; then, by means of a wire, let a bit of lighted wax taper be again immerſed to the bottom, and it will be found that the whole of this *weighty* air and objection will be evaporated together.

fire,

fire, which the blood attracts from the air, is fixed or concentrated, but not so highly as in oils, alkaline salts, &c; therefore, during its circulation through the body, and by muscular motion, it becomes sensible again, producing animal heat.

In COMBUSTION you shew that the fire becomes active or sensible, escaping from its neutralization with the other ingredients, fixed air and water; the air, as you have fully shewn, being necessary to combustion, from its being so slightly neutralized, that its fixed fire is easily let loose, and is the means of setting loose the neutralized fire of the combustible bodies.

In PUTREFACTION you have shewn us that your theory is still more strikingly confirmed. Take, as you observe, a *new-laid* egg, its fluids are mild and bland, being simply a watery animal mucus or lymph; expose it to the air—— But why should we trifle with so insipid a thing as a *new-laid* egg?

Permit me, in order to enliven this dull and tedious epiſtle, to quote a paſſage from a facetious author, who challenges your opponents, with as much fire and indignation as could have been expected from your own pen, to come fairly forward into the open field of contention; but while he is armed in ſo formidable a manner, they will doubtleſs, as he ſuſpects, wiſely keep under cover.

"Dr. Harrington's ſyſtem of airs," obſerves this indignant writer, "did "not originate from the experiments "of gun-barrels, but from an accurate "obſervation of nature. Take an egg, "and examine its fluids; they are mild "and bland, conſiſting of a watery *mu-* "*cus*; but expoſe it to the air, and it "will become highly putrid; its fluids "are changed from a pure ſtate to one "highly alkaleſcent and noxious, emit- "ting a moſt nauſeous ſtench. I need "not enlarge upon this topic, as every "one muſt be acquainted with the phlo- "giſtic alkaleſcent ſtate of its putrid "fluids.

" fluids. Then how muſt the egg have
" received all this alkaleſcency? From
" the air, no doubt, as there was no
" other body that acted upon it. The
" air, according to their opinion, is
" highly phlogiſticated; then the won-
" der ſtill encreaſes, as we have not only
" the phlogiſton of the putrid egg,
" but alſo the phlogiſton which the air
" is ſaid to have received, to account for.
" According to Dr. Prieſtley's explana-
" tion, one egg will phlogiſticate two
" thouſand gallons of air; therefore,
" agreeable to his experiments, this egg
" muſt have given to the air one thou-
" ſand gallons of inflammable air; or,
" according to Lavoiſier, ſome ounces
" of charcoal; or, to others, an im-
" menſe quantity of phlogiſton.

" My reader muſt excuſe me, if I
" cannot bring myſelf to believe that
" this fine, mild, bland lymph, could
" poſſeſs ſo much phlogiſton, as not
" only to turn into a ſtate ſo highly pu-
" trid and offenſive, but even to phlo-
" giſticate

" giſticate ſuch a quantity of pure air.
" And I beg leave to diſſent from the
" opinion of thoſe chemiſts who believe
" it; their reaſons and chemiſtry being
" ſo different from mine. To convince
" their judgement that they are wrong
" is, perhaps, not in my power; yet I
" hope I ſhall be able to convince their
" ſtomachs. Let thoſe who hold the
" opinion I am combating firſt ſwallow
" a ſound egg, and then a putrid one,
" and I am ſure their ſtomachs will be
" convinced, and of courſe their heads;
" the ſympathy and relation between
" theſe two parts of the body being ſo
" near and intimate. After this doſe
" I think they would be of my opinion.
" M. Lavoiſier is ſo much ſtruck with
" the ſtate of putreſcency, that he won-
" ders that chemiſts have not been more
" attentive to it. Some chemiſts have
" not paſſed it by; for, if he will pleaſe
" to attend to what Dr. Harrington ſays
" in his publication in 1780, he will
" there ſee the proceſs of putrefaction

" fully

" fully demonſtrated and proved. In " the putrefaction of vinegar, the acid " is turned alkaleſcent*."

But to return to your general theory. Such, I believe, are nearly the great outlines of that ſyſtem of aërial philoſophy which you have promulgated and fully elucidated in your different volumes; and which appears to me to comprehend the only true principles of the atmoſphere.

It occurred to me that *An Enquiry into the general Diſtribution of Heat through the different Objects of Nature* would neceſſarily comprehend a view of that ſyſtem which I admire. Perhaps I have undertaken the taſk with the zeal only of a proſelyte. I have certainly been anxious to do juſtice to your opinions, and ſincerely hope I have not been guilty of miſrepreſentations in regard to other philoſophers. But if any thing of that kind hath iſſued from my

* Vide Bewley's Treatiſe on Air, p. 198.

pen,

pen, I ſhall be ready at all times to make public atonement. Perhaps in ſpeaking of what you and I deem an erroneous concluſion of Dr. Prieſtley, reſpecting the melioration of the atmoſphere by vegetation, I ought to have mentioned, as you have done, in your "Thoughts "on the Properties and Formation of "the different Kinds of Air," p. 183, "when we conſider that Dr. Prieſt-"ley's experiments were made in water, "and that *he* afterward found that water, "expoſed under the ſame circumſtances, "would yield empyreal air, it muſt "needs, as he acknowledges, take off "from the idea of the plants meliorating "the air."

At the end of ſection xxxiii, in which he treats *of the ſpontaneous emiſſion of dephlogiſticated air from water in certain circumſtances*, he ſpeaks thus: "It will probably be imagined, that "the reſult of the experiments recited "in this ſection, throws ſome uncer-

" tainty on the reſult of thoſe recited
" in this volume, from which I have
" concluded, that air is meliorated by
" the vegetation of plants, eſpecially
" as the water by which they were
" confined was expoſed to the open
" air and the ſun in my garden. To
" this I can only ſay, that I was not then
" aware of the effect of theſe circum-
" ſtances, and that I have repreſented
" the naked *facts* as I obſerved them ;
" and, having no great attachment to
" any particular *hypotheſis*, I am very
" willing that my reader ſhould draw
" his own concluſions for himſelf."

But it is needleſs to apologize either to you or to Dr. Prieſtley—By a daſh of his pen the Dr. can always do juſtice to his own opinions ; and with reſpect to yours, if they contain, as I firmly believe they do, the only true principles of the atmoſphere, there is not a doubt but time will do them juſtice alſo ; " *every important truth will,*

" *ſooner or later, riſe victorious over, and*
" *ſuppreſs its oppoſing errors**."

I am, Sir,

with all poſſible reſpect,

your moſt obedient, &c.

---

* Vide Analytical Review, April, 1791, p. 374.

*** *The*

*** *The* MEDICAL SPECTATOR *thinks it proper to mention, that every candid objection to the* Harringtonian Theory *will meet with the ſame attention which has been paid to theſe Papers.*

THE

MEDICAL SPECTATOR.

NUMBER XIX.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,

Printed, by J. NICHOLS, for the AUTHOR,
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MERRILS, Cambridge; W. MEYLER, Grove, Bath;
and all other Bookſellers in Town and Country.

MDCCXCII.

THE MEDICAL SPECTATOR.

NUMBER XIX.

SATURDAY, FEBRUARY 4, 1792.

Credebant hoc grande nefas et morte piandum
Si juvenis vetulo non assurexerat. JUVENAL.

——————— *dum loquimur*
Fugit, interea fugit irreparabile Tempus.

For while men tipple, prate, and lie,
Time on smooth scates slides swiftly by.

Dr. BAYNARD. *Health*, a Poem.

IN the important capacity of MEDICAL SPECTATOR I am admitted without ceremony into every hospital in London; and, notwithstanding the jealous scowl which sits lowering on the brow of the Teacher, it gives me secret pleasure to observe all the young Pupils treat me with uncommon deference and respect. Very often when I have known,

by certain attitudes of the body, and emphatical inflections of the arms, that Crabbe the Jew, Jim the Waterman, Humphries and Mendoza, Johnſon or Big Ben, or the little Jordan, have been the topic of converſation, I have had the ſatisfaction to obſerve the cadence in the voice of the principal ſpeaker ſuddenly change to a graver tone; and, by the time I have got ſufficiently near to ſhake him by the hand, ſome intereſting queſtion on the ſubject of the nervous fluid or muſcular motion hath been ſported with a celerity equal to one of the happieſt *ſtrokes* of the moſt celebrated *amateur*. And ſince I am well convinced that the young rogues all love me in their hearts, I always ſhut my ears when a half-ſtifled titter, or the words *Quiz* or *Quoz*, or *Daddy Villers*, ſeem to threaten ſomething like diſreſpect. For, when age and experience mingles with youth and vivacity, the gravity and ſolemnity of the former ſhould ever accommodate itſelf to the *gaieté de cœur* of the latter. The little

ſportive

ſportive ſallies of youth, which are irritating only to the moroſeneſs of age, are perhaps inſeparable from a warm heart and a lively imagination.

Indeed, I have often thought that, if the teachers of medicine were to mix more freely with their pupils, it would contribute much to their mutual advantage.

The different ages of man have been often and aptly compared to the different ſeaſons of the year. Youth is the ſpring tide of life, when the buds and the bloſſoms of ſcience appear; and I believe it is an obſervation which will pretty generally hold good, that the moſt important ſyſtems (of theory at leaſt), however late they may have been publiſhed, have been formed at a very early period of life. It is in the ſeaſon of youth that imagination is moſt active; and the ſallies of youthful imagination, blending with the judgement of riper years, would add ſpirit and vigour to the progreſſion of ſcience. It hath hurt

me therefore frequently, when I have obſerved the teacher of fifty, who is arrived at the rich autumn of life, with a degree of *hauteur* diſcountenancing the advances and enquiries of his youthful attendants; or the hoary practitioner of three ſcore years and ten, with an avarice peculiar to age, hoarding in the granary of his own boſom the accumulated diſcoveries of long-continued experience.

It hath often occurred to me that the ſupercilious profeſſor is diſcountenancing thoſe who are hereafter to enlarge or annihilate the favourite opinions in which he is at preſent glorying; for, however ſingular and extraordinary the idea may appear, I cannot help, when I am ſitting in the preſence of a profeſſor ſurrounded by a crowded audience, caſting my eyes upon his youthful hearers, and conſidering them as the philoſophers who are hereafter to favour the world with ſuperior diſcoveries; who are to look back with a ſmile upon the

the want of information in him who now aſſumes ſuch airs of importance. He appears in my eye like a lamp in the ſocket, which has had its blaze and is haſtening to extinction; but they are ſo many torches ready to catch the flame of ſcience, which, in a hundred different forms and places, will break forth to enlighten whatever in the preſent day may be dark and obſcure.

My readers, therefore, will not be ſurprized when I inform them, that, after liſtening to any intereſting lecture, I am eager to gather the opinions and remarks of thoſe who are ſo much inferior to me in age and experience. For the rapid glance and the unreſtrained idea of a youthful genius often communicates a hint, or forms the baſis of a ſpeculation, which, but for this mode of turning it to advantage, would be loſt both to its owner and the world, and diſſipated amidſt the pleaſures and amuſements of youth.

The advantage, therefore, which my juvenile companions often receive from the ſerious and ſententious remarks which I am ſo frequently throwing out, is reciprocal; there is a certain bond of union betwixt us, their judgements are improved, and my imagination ſtimulated. They liſten to me with eagerneſs when I dwell upon the neceſſity for diligence and attention to the various ſtudies, on the ſucceſsful application to which depends their chance of riſing in future to eminence in the profeſſion of phyſic. Sometimes I may be ſeen pointing out to a little circle, which inſenſibly enlarges to a reſpectable audience, how dangerous it is to give way to the allurements of pleaſure, which may take them a ſingle hour from ſtudy and obſervation. To many of my youthful friends, thoſe at leaſt who are deſtined hereafter to act in the very important, I had nearly ſaid the moſt important, medical ſtations, viz. as ſurgeons,

geons, apothecaries, and men-midwives, one, or perhaps two years, is the period allotted (after the expiration of an apprenticeſhip) for the ſyſtematical acquirement of every branch of medical ſcience. How little of this ſhort period ought therefore to be diſſipated in folly and extravagance! Yet theſe two years of inſtruction, which will ſoon paſs over never to be recalled, are capable of being lengthened or ſhortened by the manner in which they are employed. The true value of time is ſeldom known to any but profeſſional men, and to profeſſional men only, when the hurry and perplexity of buſineſs prevents them from enjoying it. But there are in the buſieſt day of the *hardeſt labouring* medical man ſome ſmall portions or ſnatches of time, which it is in his power to turn to advantage by methodical arrangement.

The man who goes to bed ſober, and riſes early in the morning, may command one or two hours for reading and

reflection every day. And it is my wish that I could impress every medical student, before the busy periods of life arrive, with a proper idea of the value of those little broken portions of time. Perhaps one example may suffice.

I am far from believing that the best dressed young man in an university or hospital is likely to be possessed of the brightest parts or the soundest judgement. I am, however, an advocate for dress. And I would wish every young man, whose finances will admit of it, to sit down regularly every morning to have his hair dressed; because I can never persuade myself, that, where the outside of the head is totally neglected, the interior parts can be much attended to. A sloven in his person, be his abilities what they may, will always be more or less of a sloven in his intellectual arrangements. But when I persuade a medical student to sit down regularly every morning to the hair-dresser, I am far from allowing him to sacrifice

crifice even that ſmall portion of time to frivolous or pernicious converſation, or vacancy of thought; for it is in his power to ſtore the inſide of his head with uſeful and valuable ideas, while the operator is adorning the ſurface. Let us ſuppoſe the ſtudent to be turned looſe from behind the counter with barely ſufficient Latin to read an eaſy preſcription, or with ſome little proficiency in Latin and Greek. In either caſe I would adviſe a Lexicon or a Latin Dictionary, and ſome good Latin or Greek author, to be conſidered as a neceſſary part of his toilet. From fifteen to twenty minutes, which I take to be the medium of time allotted upon this occaſion, if well applied, will enable him to make himſelf maſter of one ſentence at leaſt of Latin or Greek every morning. And, if this portion of time is thus uſefully employed, the effect will gather as it goes, like the ſnow-ball, and in leſs than a month he will be able to conquer a whole page at a ſingle ſitting; and will thus inſenſibly get into the habit of

uſefully employing every other broken portion of time; and let but each of theſe portions, ſo reſcued from annihilation, be multiplied by 365, how great would his attainments be at the concluſion of one year!

Mr. Locke did not think it beneath his dignity to recommend a regular ſacrifice to be made every morning at the temple of Cloacina; and I have known a ſyſtematical fellow who, by improving on this idea, or rather by engrafting another idea thereon, became an excellent claſſical ſcholar. It was his cuſtom always to carry ſome cheap and worn-out Latin book in his pocket. He began with the Colloquies of Corderius, and gradually aſcended, leaf by leaf, through all the poets and hiſtorians of the Auguſtan age, and is at this moment amuſing himſelf with the Poetæ minores Græci. He gradually fell at laſt into the habit of *thinking in Latin*, and is now in high expectation of being ſhortly elected preſident of the Phyſico-

medico,

medico, or the Æſculapian Society, or even of being admitted as a viſitor at the Hebdomado-medico.

But to be ſerious. A knowledge of the claſſics is merely an ornamental part of the medical profeſſion; for now that lectures are delivered in the Engliſh language, it is very poſſible for a medical man to become a good and a valuable practitioner, without the knowledge of either Greek or Latin; but I believe the number of ſuch valuable practitioners is very ſmall. What I have here ſaid, therefore, reſpecting an attainment of claſſical learning will be equally applicable to every other branch of ornamental or medical ſcience, and will be equally uſeful to thoſe excellent ſcholars, which I have the pleaſure to find very numerous amongſt the ſtudents both of phyſic and ſurgery.

If, by properly appretiating the methodical arrangement of hours and minutes, I ſhall be happy enough to induce the young men, for whom this Paper is

expreſſly

expreſſly written, to make themſelves maſters of every poſſible medical information which their time and circumſtances will admit, I ſhall contribute largely not only to the public emolument, but in future to their own internal ſatisfaction, when that important ſeaſon arrives, which ſooner or later muſt come, when the peace and the happineſs of a whole family, and the future welfare perhaps of the widow and the orphan, may depend upon the manner in which the preſent moments are employed.

What muſt be the ſenſations of that man, who is conſcious that the parent of a numerous family has been cut off in the prime of life, perhaps ill prepared for eternity, by ſome acute diſtemper, which owed its greateſt *malignity* to an erroneous indication, or an injudicious preſcription, which a proper attention to all the different branches of medical education might have taught him to avoid! In vain will the careſſes of a deluded

deluded family bear him up againſt the reproaches of his own conſcience.

How different will be the feelings of him, who, though loaded with the reproaches of ignorant or illiberal relatives, can, at the termination of the moſt diſtreſſing and unſucceſsful caſe, appeal to a conſcience dictating an aſſurance, that his want of ſucceſs has been owing only to an imperfection in the preſent ſtate of medical ſcience!

N. H.

*** *The favours of ſeveral ingenious Correſpondents will be particularly acknowledged the firſt opportunity. And on* Saturday *next The* MEDICAL SPECTATOR *will contain a* REMONSTRANCE, *particularly addreſſed to thoſe* (WICKED *Apothecaries) who have Children, and who will not give them Dr.* JAMES'S *Powder. Vide Mr.* N———'s *Advertiſement in the* St. James's Chronicle, Jan. 28, *and the other Papers.*

THE

MEDICAL SPECTATOR.

NUMBER XX.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,
Printed, by J. NICHOLS, for the AUTHOR,
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MDCCXCII.

THE MEDICAL SPECTATOR.

NUMBER XX.

SATURDAY, FEBRUARY 11, 1792.

"*Et quoniam in illis ſanguinea maſſa quaſi inflammata, et accenſa eſt, et interdum aura veluti maligna afflata; magna opus eſt medico doctrina, prudentia, et ſagaci cunctatione in illarum curatione. imo* religioſa *Naturæ motuum obſervatione, aliter pernicioſi ſubnaſcentur errores.*" BAGLIVI, de Variolis et Morbillis.

"The Meaſles, which are ſo prevalent at this time, have proved extremely fatal. The genuine Dr. James's Powder has been long known as an almoſt infallible remedy for this complaint, yet the apothecaries in general will not adminiſter it. Thoſe, therefore, who have children afflicted with this diſorder, are informed, that, by purſuing the printed directions thereof, they may give this medicine with ſafety and ſucceſs."

St. James's Chronicle, Jan. 28, 1792.

"What will not Avarice attempt?"

Printed Directions for Dr. James's Powder.

I SHOULD think myſelf not only ill-qualified to ſupport the character which I have aſſumed, but unworthy of the publick favour, and extremely

remiſs in my duty as Medical Spectator, was I to ſuffer the mercenary advertiſement, prefixed to my paper of this day, to paſs unnoticed.

Although *I*, preſuming upon my public ſtation, may ſometimes take the liberty to attempt the *ridiculum acre*, and, at the expence of my brethren, or more probably of myſelf, trifle with the dangerous talent of humour; yet a ſerious reflection, which carries with it an accuſation of want of honour and integrity in any branch of the healing art, as a general body of men, will at all times rouſe my indignation. When I declared, in my firſt paper, that the empirical part of the profeſſion would be deeply concerned in my future progreſs, I confeſs I was far from thinking that the moſt reſpectable of the advertiſing fraternity would be the firſt to call forth my vengeance, and to feel the laſh of reprehenſion.

I conſider this advertiſement as falſe, impudent, and dangerous.

That

That it is falſe is evident, becauſe I believe there is hardly an apothecary in the kingdom that will not allow Dr. James's powder to be a valuable medicine, and that has not in the courſe of his practice adminiſtered it either in the meaſles, or in ſome inflammatory affections which have been the conſequence of the meaſles. Nor do I believe it would be eaſy to find a ſingle apothecary who would not have the candour, where he approved of it as a medicine, to indulge the prejudices either of a patient or his relatives, by proportioning the doſe in their preſence from a packet of their own procuring. And I believe it will be found that there are many, very many, apothecaries, and phyſicians *too*, who are ſtill weak enough to ſuppoſe that this powder, as prepared by the proprietor, and vended by Mr. Newbery, is a better medicine than the antimonial powder of the London Pharmacopœia, as prepared at Apothecaries Hall. But, notwithſtanding

the unintelligible ſpecification at the Patent Office, it is preſumed that the very accurate analyſis of this powder, which has lately been preſented to the publick by that ſkilful and truly ingenious chemiſt Dr. Pearſon, through the medium of the Philoſophical Tranſactions, will convince every practitioner that the compoſition of this celebrated medicine is no longer a ſecret.

That the advertiſement is an impudent one is evident, becauſe it charges a reſpectable body of men with acting on diſhonourable motives, becauſe it not only preſumes to *dictate* a mode of practice, but practice which, upon enquiry, will be found to be erroneous.

That it is dangerous will appear from the nature of the diſeaſe in queſtion. The meaſles are generally attended with a conſiderable degree of fever, a catarrhal defluxion on the eyes, the internal ſurface of the noſe, the fauces and trachea, in ſome inſtances, extending to the membrane which lines the ſurface

face of the lungs. A ſevere cough is of courſe a common accompaniment, and not unfrequently a difficulty of breathing, with pain and other peripneumonic affections; together with a general tendency to inflammation. Severe as theſe ſymptoms are, if no imprudent ſteps are taken, if the patient is neither expoſed to much heat or cold, if he abſtains from animal food, from heating liquors, and from active medicines; if he dilutes copiouſly with barley water, or pectoral drink, in a few days the ſymptoms in general gradually and ſpontaneouſly ſubſide. But when he is badly managed, where he is kept in a cloſe or a very warm apartment, indulged with wine whey and improper food, and ſometimes from a peculiarity of conſtitution, the fever will be doubled, the peripneumonic ſymptoms encreaſed, and real danger ariſe. In this caſe, bleeding is well known to be a valuable and almoſt an indiſpenſable remedy; and that Dr. James's powder,

in *ſmall* and repeated doſes, together with the ſaline or pectoral draught, may be a uſeful aſſiſtant.

It ſometimes happens that this diſeaſe will put on a different appearance. From the application perhaps of cold air, from the uſe of cathartic medicines, of active doſes of Dr. James's Powder, or other antimonials; from too copious a uſe of acid drinks and aceſcent food, or from peculiarity of conſtitution, the eruption will prematurely recede, it will fall upon the bowels, or fix upon the lungs; a dyſentery, or a tendency to conſumption, and other dangerous conſequences, will ſometimes ariſe. In the caſe of dyſentery, a warmer regimen, opiates, warm bath, and woollen garments, will produce the happieſt effects; and perhaps in this caſe, when the complaint has not originated from too large a doſe of Dr. James's Powder, or ſome other antimonial preparation, a judicious uſe of that medicine, combined with opiates, may aſſiſt in producing

ducing a determination to the ſkin. In the caſe of pulmonic inflammation, conſequent upon meaſles, this powder, together with ſmall bleedings, and a rigid antiphlogiſtic regimen, is alſo admiſſible as a remedy.

But it is well authenticated that the meaſles will ſometimes put on a ſtill more formidable appearance; they will be attended with great debility, and with ſymptoms which come under the denomination of putrid; and under the beſt management, it is upon record, that many caſes have thus terminated fatally. And here Dr. James's Powder muſt be a very doubtful, and ſometimes, from the profuſe evacuations which it occaſions, a very dangerous medicine.

But further, the public are incapable of diſtinguiſhing betwixt the meaſles and other eruptive diſeaſes. The ſcarlet fever and the infectious ſore throat ſhall only be mentioned. The eye of an experienced and attentive medical man

in

in a moment perceives the difference. But that the public ſhould be capable of diſcriminating, is more than can be expected, for it hath ſometimes happened that medical practitioners have been themſelves deceived, and it is needleſs to mention that the conſequences have alſo been ſometimes fatal. But let us for a moment admit that the public are capable of diſtinguiſhing in theſe caſes of life and death, and that they can always to a certainty know when their children are really afflicted with the meaſles. For the mode of adminiſtering the medicine they are referred by the advertiſement to the printed directions diſtributed with the powder; and in thoſe directions they are further referred from the treatment of the meaſles to that recommended in the ſmall pox; and in both are left at liberty to fix upon any quantity leſs than ten grains, without reſpect to age, ſex, temperament, or conſtitution—and in a different part of the directions where the

age is particularly ſpecified, *ſomething* leſs than the fourth part of a paper is mentioned as a proper quantity for a child of two years of age. It is therefore highly preſumable that a perſon totally unacquainted with the nature of this medicine, and who is told that it is almoſt an infallible remedy for the meaſles, will generally adminiſter too large a doſe, and that perhaps in a caſe where it is improper.

But to talk of an infallible remedy for the meaſles is ridiculous in the extreme. Brimſtone is an infallible remedy for the itch, and mercury, in general, for the pox; the meaſles admit of no infallible remedy. The diſeaſe muſt unavoidably go through its regular ſtages till it gradually ſubſides; and the advertiſer might as well talk of an infallible remedy for a hurricane. All that a wiſe phyſician or a judicious apothecary attempts, is to attend aſſiduouſly to a regulation and moderation of the ſymptoms till the hurricane blows over,

over, and ſubſides of itſelf: and in preſcribing for particular ſymptoms, Dr. James's powder may ſometimes be of conſiderable uſe; but as the diſeaſe in general is free from danger, to hold out by public advertiſement to the ignorant and unwary, an inducement to the general and indiſcriminate uſe of a powerful medicine, which, in ſome caſes of real danger, may be extremely improper, and which in all is well known to require both caution and ſkill in its application, can originate only in the moſt contemptible and mercenary motives, and muſt be infallibly productive of conſiderable miſchief; more perhaps than would ariſe if the inhabitants of Bedlam were to be turned looſe upon the public with inſtruments of deſtruction in their hands. I was even upon the point of publicly declaring that many a vagabond hath been whipped at the tail of a cart for a ſmaller offence than the penning and publiſhing of that advertiſement.

But, upon a ſecond peruſal, I diſcovered that I had totally miſtaken its meaning—*ibi omnis effuſus labor*—I might have ſaved myſelf the taſk of writing, and the public the trouble of peruſing this remonſtrance: for that advertiſement, inſtead of rouſing the reſentment of apothecaries, ought certainly to conciliate their friendſhip and eſteem; which will clearly appear by attending to its literal conſtruction. "The meaſles, which are ſo prevalent "at this time, have proved extremely "fatal. The genuine Dr. James's "Powder has been long known as an "almoſt infallible remedy for this com-"plaint, yet the apothecaries in general "will not adminiſter it. Thoſe *(apo-"thecaries)* therefore, who have chil-"dren afflicted with this diſorder, are in-"formed, that by purſuing the printed "directions thereof, they may give this "medicine with ſafety and ſucceſs. It "is ſold only at Mr. Newbery's, N°. 45, "in St. Paul's Church Yard; and at

"Dr.

" Dr. James's late houſe, in Bruton " Street."

It is evident, therefore, that nothing more is expreſſed than gentle remonſtrance and kind information to the apothecaries themſelves, who may learn in this advertiſement that there is a remedy for their children, when afflicted with the diſeaſe. Yet, however obliging and humane this information may be on the part of Mr. Newbery, I am very much afraid it will have little effect upon the graceleſs characters to whom it is literally addreſſed. For it is well known, and has been known from time immemorial, that the ſons of Æſculapius, from the loweſt beater of egg and ſpermaceti, up to the Preſident of the Royal College of Phyſicians, have rarely been ſeen to take even the regular medicines compounded or preſcribed by themſelves. It is therefore ſcarcely to be expected that they will patiently ſuffer the noſtrum of a newſpaper to be crammed down the

the throats of their helpleſs babes, whoſe ſtomachs, ſhould the attempt be made, would *inſtinctively recoil.*

The whole affair, therefore, takes a new and a different turn. And I have not the ſmalleſt doubt but a deputation of apothecaries, thoſe in particular who have large or encreaſing families, will wait upon the vender and the proprietor of Dr. James's Powder, and in the warmeſt terms of gratitude thank them for their benevolent intentions toward them and their families.

N. H.

THE

MEDICAL SPECTATOR.

NUMBER XXI.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,
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MDCCXCII.

THE MEDICAL SPECTATOR.

NUMBER XXI.

SATURDAY, FEBRUARY 18, 1792.

Phœbe fave, novus ingreditur tua templa ſacerdos. OVID.

"It is uſual, you know, with the philologiſts to collect together, and add to the works of the author whom they publiſh (ſcarce, I imagine, for the purpoſe of diminiſhing the ſize or price of the book), almoſt every thing that others have ſaid concerning him." BEDDOES.

A CIRCUMSTANCE, which in all probability will form the baſis of ſome future ſpeculation, having prevented my attendance at the laſt meeting of the Medico-ſpectatorial Club till very late, I found the company on my entrance in full converſation, and entirely taken up in delivering their re-

ſpective ſentiments of a great literary character, who had been admitted as a viſitor for the evening, and who had juſt retired.

It would be impoſſible to give a regular detail of the converſation, but it was not difficult to pick up the following unconnected particulars. In reſpect to his perſon, I found this viſitor, who will very ſhortly enter his grand climacterical year, had all the appearance of health, ſtrength, and vigour of youth; the freſhneſs of his countenance diſcovered a kind of florid old age, poſſeſſing every ſymptom of arriving at, and beginning the nineteenth century with a conſtitution unimpaired by time, and the moſt flattering proſpects of longevity. The firmneſs of his ſtep, the manlineſs of his converſation, and the goodneſs of his apparel, free from all the meretricious ornaments of finery and frivolous dreſs, conveyed an idea that much of his time had been ſpent in the pure air of the country; while a fa-

a familiarity with every thing that paſſes in the moſt faſhionable aſſemblies, a knowledge of politics and parliamentary debates, and of all the tranſactions of the city and the court, and of every thing which gives the *ton* to genteel converſation, and all that is conceived under the general expreſſion of *urbanity*, ſeemed equally to have impreſſed their minds with an opinion that he had never abſented himſelf from the politer circles of life. Added to theſe accompliſhments, he had diſplayed a knowledge of the moſt diſtant countries; his manner of relating the operations of fleets and armies, his knowledge of civil liberty and juriſprudence, of the cuſtoms and manners, the hiſtory and revolutions of the moſt diſtant empires, pronounced him to be a judicious traveller, and a man of the world, a good ſcholar, and a compleat gentleman. In ſhort, I found his reputation to be ſuch, that the firſt wits, and ſome of the greateſt ſcholars of the age, poets, aſtro-

nomers, mathematicians, and thoſe who are deeply verſed in the occult ſciences, have been repeatedly made happy by his approbation of their labours, and his introduction of them to the world. To this general reputation it is owing that he is perpetually teazed with the ribaldry and nonſenſe of every unſucceſsful candidate for public applauſe. The rebus, the acroſtic, the puzzle, and the conundrum, are every day thruſt into his hands in heaps, without ceremony or reſerve, and his judgement uninterruptedly ſeen by his rejecting them with diſdain.

But, like all other great characters, he is not entirely exempt from foible. For the love of Antiquity hath now and then drawn him into ſcrapes; and Dr. DASH, with his uſual dryneſs of remark, pointed out the only ſymptom of decrepitude which he hath ever betrayed, viz. a certain *nummulary propenſity*, which, as the Doctor obſerved, is the vice of age, and in the preſent inſtance

inſtance has taken a very ſingular turn; "for it is well known," added the Doctor, "that he will pay more attention to a braſs farthing, or a mutilated piece of copper, than to the current coin of the kingdom, whether ſilver or gold."

His motto—"Prodeſſe et delectare, e "pluribus unum," together with his creſt, a hand graſping a very elegant *bouquet*, or collection of various flowers, would have clearly pointed out the perſon of our viſitor, without the following letter addreſſed to myſelf, which, together with its incloſure, a love of juſtice, and a principle of integrity, oblige me to publiſh.

"*To Dr.* VILLERS.

"Sir,

"IN a very curious work *, which hath lately paſſed under my obſervation, there is this animated paſſage: "It is

* Bewley's "Treatiſe on Air." Vide Gent. Mag. Vol. LXI. p. 641.

" the characteriſtic of this free, learned,
" and generous nation, to do juſtice to
" men and things, and to make every
" literary character, however much ex-
" alted, amenable to their tribunal."
After the pains which this author and myſelf have taken to demonſtrate the truth of the Harringtonian philoſophy, I am ſorry to ſee that you have permitted a correſpondent, in the Medical Spectator, to aſſume to himſelf the merit of having *firſt* pointed out the ſuperiority of that ſyſtem.

" From your candour, I have no doubt but that this has been the conſequence of inadvertency, and that, in order to obtain redreſs, it is only neceſſary to mention the grievance.

" I am, Sir, &c.

" SYLVANUS URBAN."

To a literary man, the converſation and correſpondence of literary men is milk and honey. My readers therefore

fore will, I am ſure, require no apology for my ſubmitting the following anſwer to their inſpection.

" Venerable SYLVANUS,

" DEEPLY concerned at the juſtice of your accuſation, permit me in this, and one or two future papers, to make the moſt honourable amends in my power, by bringing the criticiſms, to which you refer, more immediately under the medical and the chemical eye. From my numerous correſpondents (whoſe favours as ſoon as poſſible ſhall be duly honoured) I am informed that every thing which relates to the Harringtonian philoſophy is acceptable. I have, therefore, been at the trouble of taking a view of the opinions which the different monthly journaliſts have entertained on this ſubject, and find that, yourſelf excepted, they have almoſt in general overlooked its merits; moſt probably, among other circumſtances, owing to the very high degree of reputation

tation which the opinions of Dr. Prieſtley, Dr. Crawford, and many others, had acquired. To you it is well known that the writer who attempts to controvert the opinions of men, whoſe fame is thus univerſally eſtabliſhed, muſt not be ſurpriſed if his beſt endeavours to inform the world are treated at firſt with neglect. But the publick, when once convinced of its miſtake, is always ready to make ample amends. Your opinion appears to have been firſt delivered with freedom in a review of Dr. Goodwin's celebrated "Eſſay on the Connexion of "Life with Reſpiration," from which the ſubjoined extracts are thus taken and transferred into the MEDICAL SPECTATOR.

"I am, venerable SYLVANUS,

"with all due reſpect,

"your friend and fellow labourer,

"D. VILLERS."

"This

" This elegant and philoſophical eſſay, to which the gold medal of the Humane Society hath been deſervedly adjudged, is divided into ſeven ſections, the firſt of which aſcertains the general effects of ſubmerſion on living animals.

" The moſt ſtriking effect, and that from which the moſt important deductions may be drawn, is, that the right auricle and ventricle are filled with *black* blood, and the left ſinus venoſus and left auricle alſo; but the left ventricle is only about half filled with the ſame coloured blood; that the trunks and ſmaller branches of the arteries, proceeding from the left ventricle, contain a quantity of black blood alſo.

" The ſecond ſection determines whether the water produces theſe changes *directly*, by entering into the cavity of the lungs, or *indirectly*, by excluding the atmoſpheric air. By a very ingenious experiment, Dr. Goodwin aſcertains the fact, that water enters the lungs of drowning animals; but by another experiment, equally ſatisfactory, he ſhews that the quantity is inconſiderable, and that as much or more may be introduced into the lungs of a living animal without producing death, though it occaſions a difficulty of breathing, and a feeble pulſe for a ſhort period. And he ſhews clearly that the water produces all the changes that take place in drowning *indirectly*, by excluding atmoſpheric air from the lungs.

" In

"In the third ſection it appears, that the quantity of air taken into the lungs at a ſingle inſpiration is very inconſiderable, when compared with what they contain after a complete expiration. And, from other circumſtances, it alſo appears, that the dilatation of the lungs is not the final cauſe of reſpiration.

"The fourth ſection is employed in determining the chemical effects of the air on the lungs in reſpiration. Dr. Goodwin here enters upon a moſt difficult and important ſubject, in the inveſtigation of which he confirms the obſervation of LOWER, that the blood acquires a *florid red* colour in paſſing through the lungs, and that this colour is produced by the chemical action of the air. He makes it very evident, that what is denominated (though in our opinion very erroneouſly) *de*phlogiſticated air changes the colour of black blood, and that a ſmall portion of ſuch air diſappears in the proceſs. It is not, however, taken in by abſorption, but by chemical attraction. His experiments demonſtrate, that the action of the heart depends upon the *florid red colour* of the blood, and *vice verſâ*. He does not venture to give an opinion what it is that is ſeparated from the air; but he draws this very juſt concluſion, that the chemical change which the blood undergoes in the lungs by reſpiration gives it a ſtimulating quality, by which it is fitted to excite the left auricle and ventricle to contraction; and that the chemical quality which the blood acquires in paſſing through the lungs is neceſſary to keep up the action of the heart, and, conſequently, the health of the body. In peruſing this ſection, we cannot help

help lamenting that this elegant writer appears to be a ſtranger to the diſcoveries of Dr. Harrington, reſpecting the conſtituent principles of atmoſpheric air *; becauſe, had he been familiar with theſe, they would have enabled him to advance one ſtep further in aſcertaining the preciſe nature of that chemical change which, he ſo judiciouſly obſerves, really takes place."

In the ſame work from which the above is extracted may be found the following review of "A Letter to the "Right Reverend Samuel Lord Biſhop "of St. David's; occaſioned by his "Sermon on the Principle of Vitality "in Man;" which, as it is not foreign

* "As heat then is indiſputably proved to be the cauſe of elaſticity throughout all nature, ſhewn experimentally to be the cauſe of the air's elaſticity, it is very wonderful, when air at 32 degrees of Fahrenheit's thermometer ſhall be expoſed to a heat of 96 in the thorax, that heat, inſtead of increaſing its elaſticity, ſhall amazingly decreaſe it. Therefore, this argument would greatly denounce, that the blood robbed it of its phlogiſton; and this agrees with the obſervations of the alterations in the blood, that, by receiving the air's phlogiſton, it *has ſenſibly become more red*, more fluid, and warmer, agreeable to Boerhaave. As to the two latter alterations, I think I need not endeavour to prove, that, if it receives phlogiſton, it will produce a greater heat and fluidity, as heat, every one knows, makes the hardeſt bodies fluid; and as to making it more red, that likewiſe will be the natural conſequence of heat; for, if you expoſe blood to a ſtrong degree of heat, where it cannot evaporate, you may ſenſibly obſerve it to turn more red."

Vide Exp. Enq. p. 165, anno 1780.

to the ſubject, ſhall be preſented to the readers of the MEDICAL SPECTATOR.

"The celebrated Sermon of the Biſhop of St. David's, which was preached before the Humane Society on the 22d of March, 1789, has given riſe to this production; of which we cannot give our readers a better ſpecimen than by tranſcribing the following paſſage.

"*I am at a loſs, my Lord, to account for your temerity. Was your ambition inflamed by the lucky diſcoveries* of an adverſary, over whom, in another field, though ſuffering all the diſgrace of defeat, you had diſplayed all the inſolence of triumph? That adverſary, your Lordſhip knows, is thought to have made ſome conſiderable ſteps† towards explaining the nature of the connexion between reſpiration and life. He has proceeded ſlowly and cautiouſly, on the ſure ground of fact and experiment‡. Your Lordſhip, diſdaining this method, has aimed at higher honours. In your purſuit of theſe, the dictates of common ſenſe have been forgotten; the moſt palpable contradictions have been ſuffered to paſs; the aids of ſcience, which you may be allowed to poſſeſs, and the impediments of ignorance, which you cannot but have felt, have been alike diſregarded.*" Pp. 42. 43.

* "Which the fame of certain *lucky diſcoveries*, in the proſecution of phyſical experiments, had ſet high in the popular eſteem." Biſhop of St David's Preface to Tracts in Controverſy with Dr. Prieſtley.

† Theſe ſteps have been followed with great ſucceſs by Dr. Goodwin, in a very ingenious ſpecimen of experimental enquiry, intituled, "*The Connexion of Life* with Reſpiration."

‡ Witneſs the decompoſition of water. EDIT.

"The

"The above paſſage will, doubtleſs, excite the riſibility of the right reverend prelate to whom it is addreſſed. The *lucky diſcoveries* will be matter of ſingular amuſement to Dr. Harrington. The *conſiderable ſteps* towards explaining the connexion of life with reſpiration we refer to Dr. Goodwin, whoſe elegant treatiſe on this ſubject has met with its juſt tribute of applauſe in our miſcellany; but we confeſs we little expected to have heard that the author of that work had trod in the ſteps of Dr. Prieſtley, who, after *proceeding ſlowly and cautiouſly on the ſure ground of fact and experiment*, pronounces the exiſtence of animal life to depend upon a *diſcharge* of phlogiſton from the lungs. If we underſtand what we read, we believe it is clear that Dr. Goodwin's experiments go very near to eſtabliſh an opinion directly the reverſe; for, with Dr. Harrington, he hath taken notice of the obſervation of *Lower*, that the blood in the pulmonary vein is of a brighter red than in the pulmonary artery. With Dr. Harrington he hath alſo ſhewn, that, when air is expoſed to the action of the blood in the lungs, *ſomething* is abſorbed from the air; *that ſomething* Dr. Goodwin ventures to call *de*phlogiſticated air; but Dr. Harrington, who hath proved that ſpecies of air to be falſely denominated dephlogiſticated, and actually to contain a portion of phlogiſton little ſhort of that which conſtitutes inflammable air, has clearly and explicitly pronounced *that ſomething* to be phlogiſton, which, when ſeparated from atmoſpherical air, and entering into the compoſition of recently animaliſed blood in the lungs, by a common caſe of elective attraction, leaves the mephitic acid behind, with which

which it had been previouſly combined and neutraliſed in the ſtate of atmoſpherical air, which, we boldly aſſert, Dr. Harrington was the firſt philoſopher * who diſcovered to be, not a ſimple elementary fluid, but a fluid capable of compoſition and decompoſition."

* * *

* Perhaps the author of this criticiſm would have been nearer the truth, if he had ſaid, of any philoſopher of the preſent century.

THE

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MDCCXCII.

THE MEDICAL SPECTATOR.

NUMBER XXII.

SATURDAY, FEBRUARY 25, 1792.

Multa renaſcentur, quæ jam cecidere. HOR.

For out of the old fieldes, as men ſaieth,
Commeth al this new corne fro yere to yere,
And out of old bookes, in good faieth,
Commeth al this new ſcience that men lere.

CHAUCER'S *Aſſemblie of Foules.*

EVERY man of a literary turn of mind, who either is, or intends to be, in the habit of communicating his thoughts to the publick through the medium of the preſs, at different times entertains very different opinions of his own powers. Frequently, during a ſingle reverie, the moſt important ideas

will dart through his mind, every difficulty vaniſh before him, and glory and ſucceſs appear within his reach; yet, perhaps, when he ſits down with theſe flattering proſpects crowding thick upon each other, before his pen, his paper, and his other neceſſary implements, can be collected, he will find the traces left upon his mind reſembling thoſe which the ſun beams ſcatter upon an evening ſky.

When the MEDICAL SPECTATOR firſt ſuggeſted itſelf to my imagination I felt all the ſenſations which I have here deſcribed; and it is only now that the executive part remains, that I have diſcovered how great a difference there is betwixt the firſt conception and the final execution of a literary performance. During the late dull and gloomy weather I have more than once been tempted to take the advantage of my yet remaining *incog* to ſink again into obſcurity; but no ſooner does the ſun break from behind a cloud, and irradiate

diate the hemiſphere, than the glittering proſpect returns.

Unable to concentrate my thoughts, in a fit of deſpondency, I yeſterday took my hat, my cane, and my gloves, and cautiouſly locking up my portable writing deſk, ſallied forth into the ſtreets, determined to entruſt the ſpéculation of this day to chance; and under the direction of this blind deity, or perhaps from ſome ſecret internal biaſs, found myſelf inſenſibly drawn from the *ſuperior regions of the atmoſphere* to the philoſophical ſhelves in Middle-row, Holbourn, where an avenue of old books on the right and the left ſeldom fail to attract the notice of the literary ſaunterer; and I was not a little ſurpriſed to find the price current of the Latin books enhanced more than *cent. per cent.*; the ſixpenny octavos having mounted up to eighteen pence. Upon remonſtrating with Mr. Ogilvie upon this very extraordinary innovation, he told me, with joy ſparkling in his eye, that within the

laſt fortnight a great literary revolution had taken place. "Formerly, Sir, an old Latin book might have ſtood expoſed to the damps of winter and the ſcorching heats of ſummer, without ever attracting the notice of a ſingle paſſenger; unleſs ſome very grave, ſtaid, and reſpectable, philoſophical looking gentleman, like yourſelf, or ſome elderly clergyman with a ruſty black coat, or poet with holes in his ſtockings, or ſome *wild* young Scotchman, or ſcholar from Cumberland or Weſtmoreland, or ſome of the other learned and œconomical counties in the North, ſhould happen to throw down his ſixpence or his ſhilling, and reſcue an odd volume from the unmerciful hands of the cheeſe-monger. I am at a loſs, Sir," he continued, "to account for this ſudden demand for old literature, but the fact is indiſputable; for now a number of ſmart well-dreſſed young gentlemen are perpetually calling, and eagerly purchaſing, every Latin book as faſt as my

gooſe's

gooſe's wing can bruſh off the duſt and the cobwebs. Within theſe two hours, Sir, I have diſpoſed of fifteen volumes; and being anxious to diſcover the cauſe of the ſudden demand, I took an opportunity of mentioning to one of the young ſparks, that Latin books muſt ſoon be very ſcarce, at the ſame time adding, in a tone of enquiry, 'I am at a loſs to think why every thing in the Latin language now goes down ſo faſt;' when, to my great ſurprize, he burſt into a loud fit of laughter, and marching off with his companion, and at the ſame time rapping out an oath, ſwore that it would not be long before the whole fifteen volumes would *go down* too, leaving me entirely at a loſs to underſtand his meaning."

Had the converſation continued, Mr. Ogilvie muſt very ſoon have diſcovered how much I felt myſelf intereſted in the concluding part of his narration; therefore, haſtily picking up the firſt volume on which I could lay my hands,

and paying my eighteen pence, I determined to leave him ſtill in the dark, and to return to my own apartment; reflecting all the way thither upon the dangerous conſequences that may ariſe from the opinions* of eminent men being unguardedly communicated to the world, which is apt to carry its ideas often much further than *we* ourſelves intend. Anxious to acquire the character of a friend to literature, I leave my readers to judge how ſeverely my feelings muſt have been wounded under the ſelf-accuſation, that poſterity, at leaſt, if not my contemporary philoſophers, will accuſe me of being its greateſt enemy. Even the ideas of the Caliph Omar himſelf (ſaid I), when he ſet fire to the Alexandrine library, were magnanimous when compared with mine; yet *he* hath deſervedly incurred the animated cenſure of the ſatyriſt:

* Vide N° XIX, p. 301, &c.

— Such

——————— Such he who roſe
The ſavage chieftain of fair Learning's foes.
And as the volumes in his flames expire,
Shakes the laſt brand, and blows th'exhauſted fire,
To infamy the Muſe conſigns his name,
And ſtirs his aſhes till they *ſtink* to Fame.
D'ISRAELI'S *Defence of Poetry.*

Full of theſe melancholy and humiliating reflexions, and anticipating the curſes of the literary world, it was a conſiderable time before I thought of examining the volume which I had ſo recently reſcued from deſtruction; when, to my unſpeakable joy, I found myſelf in poſſeſſion of MAYOW'S *Medico-phyſical Tracts*, a work which, for twelve months, I have been eagerly enquiring after, and in vain ranſacking every ſtall.

The well-written paragraphs of Dr. Beddoes were ſtill freſh in my memory.

"He, viz. Mayow, (ſays this excel-
"lent and ſpirited writer) threw away
"with ſcorn the vague ideas annexed
"by the old chemiſts, to the terms
"ſulphur, mercury, &c. He has

" clearly preſented the notion of phlo-
" giſton, which rendered the name of
" Stahl ſo celebrated. He perceived the
" action of dephlogiſticated air in al-
" moſt all the wide extent of its influ-
" ence. *He was acquainted with the*
" *compoſition of the atmoſphere*, and
" contrived to make the mixture of ni-
" trous and atmoſpherical air. He was
" well aware of the cauſe of the increaſe
" of weight in metallic calces, and di-
" ſtinctly aſſerted, that certain baſes are
" rendered acid, by the acceſſion of
" nitro-atmoſpherical particles, or what
" has ſince been denominated the acidi-
" fying principle."

" Newton's diſcoveries concerning
" light ſtand in the ſame predicament
" with Mayow's on air; to me both ex-
" hibit themſelves as the greateſt devi-
" ations preſented by the whole hiſtory
" of ſcience, from the ordinary and na-
" tural progreſs of knowledge; they
" would undoubtedly (we ſee that it has

" actually

" actually happened in one caſe) have
" been ſometime made, but not till a
" century or two had improved the ta-
" lent both of obſervation and reflexion;
" though our two illuſtrious country-
" men, like the progenitor of mankind,
" when the arch-angel had purged his
" ſight *with euphraſy and rue*, were,
" by a peculiar privilege, admitted to
" the view of ſcenes reſerved for a di-
" ſtant poſterity."

" He calls the great principle, which
" he has purſued ſo far through nature,
" by a variety of titles: vital ſalt, be-
" cauſe this peculiar kind of air is ne-
" ceſſary to reſpiration: igneous ſalt,
" becauſe it is neceſſary to the ſupport
" of fire. The term ſalt ſeems in his
" time to have been very indefinite;
" ſometimes it is denominated fire-air
" particles, and in this particular, the
" coincidence between the terms of two
" great chemiſts of different ages,
" Scheele and Mayow, is remarkable."
p. XXVIII.

" One

"One late writer on philoſophy, "(continues Dr. Beddoes) I ſee, has "been fully aware of the nature and "importance of Mayow's diſcoveries: "'Magna jam pars memorabilium ho- "rum phenomenorum,' ſays he, ſpeak- "ing of reſpiration, 'quibus nuperis "luſtris & phyſica de aëribus factitiis "diſciplina et phyſiologia negotii reſpi- "rationis tam egregie ditata et illuſtrata "eſt, jam ante centum et quod excur- "rit annos innotuit acutiſſimi ingenii "medico Joanni Mayow, cujus de *ſal-* "*nitro* & ſpiritu *nitro aërio* (quo nem- "pe nomine dephlogiſticatum aërem "inſignivit) tractatum, *Oxon.* 1674, "8vo. editum, magna cum voluptate "legi & relegi*'."

Again, "The following table of "contents will render any obſervations "of mine ſuperfluous: it is a cloſe "tranſlation from the original, except

* Blumenbach, Inſtit. Phyſiologiæ, p. 114, Goettingæ, 1787.

"in

" in one or two places, where, for the " ſake of perſpicuity, I have exchanged " the notices of the index for the ful- " ler expreſſions of the text. It may " be conſidered as a faithful map of the " author's opinions, &c." Ch. I. p. 24. Of Nitre. *The air is impregnated with a vital and igneous ſalt.*—*How nitre is produced in the earth.*—*The Air contributes to its generation.*—NITRE COMES NOT ENTIRELY BUT IN PART ONLY FROM THE AIR.—Chap. II. On the Air and Fire Part of Spirit of Nitre.—*Whence the ſpirit or acid of nitre comes*—*whether from the air*—*not* TOTALLY, *but* PART.—*Something from air is abſolutely neceſſary to ſupport fire, or combuſtion*—*not however the whole air, but only its more active part, nor the whole of nitre.*—*Fire-air particles exiſt in nitre.*—*The fire-air particles of nitre ſeem to conſtitute its aërial or atmoſpherical part.*—Chap. V.—*Why vegetables, burned with a ſmothered fire, afford more fixed ſalt than*

than otherwiſe?—Chap. VII.—*The elaſticity of the air is diminiſhed by combuſtion.*—*Something from the air is neceſſary to the ſupport of flame.*—*The air diſcharged from the lungs of animals is deprived of elaſtic particles.*—*How much the elaſticity of the air is diminiſhed by the breathing of animals.*—*The entrance of the air into the blood is demonſtrated.*—*Fire and life are maintained by the ſame aërial particles.*—PROOF THAT THE PARTICLES OF AIR ARE A COMPOUND, AND NOT A SIMPLE BODY.—*The igneous and vital particles of air are not the acid itſelf, but only its more ſubtle part.*—*Fire-air particles equally exiſt in air and nitre.*—*Why an animal dies, and a candle goes out when incloſed in a glaſs veſſel that has no communication with the atmoſphere.*—*Why there is a conſtant current of air towards flame.*—*Air diſcharged from the lungs is lighter than before.*—*Of the wiſdom of Providence.*—*How the air, when deprived of its nitro-atmoſpherical particles, is repleniſhed with*

them.—The element of fire is placed in the ſun.—Chap. VIII.—*Nitro-aerial particles paſs into the maſs of blood.—Of the uſe of nitro-atmoſpherical ſpirit, when taken into the lungs.—Why the arterious blood is more florid than the venous.—The warmth of the blood depends on the inſpired air.—Why animals become ſo hot upon violent motion.*—Chap. IX.—Whether air can be generated *de novo?*—*An experiment in which air ſeems to be generated; it does not however ſeem to be air, becauſe it is unfit to ſupport life.* 2d. Treatiſe on Reſpiration.—*Of the uſe of reſpiration.—Inſpired air does not contribute to cool the heart—nor is its only uſe to afford the blood a paſſage through the lungs—nor to break down the blood.—Inſpired air contributes to animal motion.*

Such were to me the moſt ſtriking circumſtances in this map of Dr. Mayow's opinions, and which my readers, I have no doubt, will conſider as ſufficient to excite my eager deſire to obtain poſ-

ſeſſion

ſeſſion of the work itſelf, on which ſo excellent a writer as Dr. Beddoes hath made the following important remarks.

"He then lays down the opinion, unavoidably anticipated in the account of the former treatiſe, *that the office of the lungs is to ſeparate from the air, and to convey to the blood one of its conſtituent parts.*"

And did Mayow, ſaid I, lifting up my hands in perfect aſtoniſhment, know that the atmoſphere was a compound body, conſiſting of different CONSTITUENT parts! Did he not rather ſuppoſe that air was an *elementary* fluid, in which certain nitro-atmoſpherical or fire-air particles are *floating?* Has it not been declared, and that too by a correſpondent in the MEDICAL SPECTATOR, that Dr. Harrington was the *firſt* philoſopher who diſcovered that atmoſpherical air was not a ſimple elementary fluid, but a fluid capable of compoſition and decompoſition, agreeable to the table of elective attractions?

The

The Royal and other reſpectable Societies generally publicly declare, that they do not conſider themſelves anſwerable, as a body, for the opinions which may be delivered in the reſpective papers which they may publiſh. Under the ſhelter of this precedent, therefore, it would be an eaſy matter for me, either as author or editor of the MEDICAL SPECTATOR, to ſhrink from animadverſion; but I ſcorn the idea. Merit, whether living or dead, as far as it lies in my power, ſhall meet with its due tribute of applauſe. "What a violent "exception have we," ſays Dr. Beddoes, "in the inſtance of Mayow, who ſilently "and unperceived, in the obſcurity of "the laſt century, diſcovered, if not the "whole ſum and ſubſtance, yet many "of thoſe *ſplendid truths* which adorn "the writings of Prieſtley, Scheele, La-"voiſier, Crawford, Goodwin, and other "philoſophers of this day!"—Bravo, ſaid I, when I read this paſſage, animated perhaps by his marginal eulogium of

Vol-

Voltaire. Bravo! If Dr. Harrington is not allowed to come in this paragraph, he ſhall have a column of his own.

" Hence he infers," ſays Dr. Beddoes, " that, in reſpiration, animals derive " from the air certain *vital and elaſtic* " *particles.*" Here then he approaches to the Harringtonian, or true ſyſtem of the atmoſphere; and it ſhall be my buſineſs to enquire how nearly he hath *approached.*

Such of my readers who are men of honour and feeling may eaſily imagine they ſee me drawing cloſer to the candle, rubbing up my ſpectacles, and proceeding to the ſcrutiny. And perhaps thoſe celebrated aërial philoſophers, who for ten years have ſo grudgingly admitted the name of Dr. Harrington to figure amongſt them, will readily ſubſcribe to this enquiry, which threatens to pluck a feather from his wing.

* * *

*** The

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THE

MEDICAL SPECTATOR.

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NUMBER XXIII.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

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MDCCXCII.

THE MEDICAL SPECTATOR.

NUMBER XXIII.

SATURDAY, MARCH 3, 1792.

"Nature knows no uſe of cloaths to an infant but to keep "it warm." BUCHAN.

"Where one child is hurt by the quantity of its food, ten "ſuffer from the quality." Ibid.

HOWEVER melancholy the reflection, it is a fact, founded on very accurate obſervations, that one-third of the human ſpecies die under two years of age. In this inſtance, how much inferior are the boaſted wiſdom and ſuperiority of man, when contraſted with the inſtinct of the lower ranks of the creation! for where the means of ſubſiſtence are to be found, it rarely hap-

pens that the latter are unſucceſsful in rearing their offspring; while the former, in every ſituation, but more particularly in civilized and poliſhed countries, are thus dreadfully deficient. The purport of my preſent paper ſhall be in ſome meaſure to obviate the evil, by pointing out at leaſt one or two ſources of this deplorable mortality.

I have long been convinced that the two greateſt ſources of infantine mortality conſiſt in the want of proper food and raiment.

The cuſtom which prevails to ſo great a degree, of mothers neglecting to ſuckle their own offspring, having been already very frequently and ably commented upon by the beſt authors, it is unneceſſary for me to dwell upon the ſubject. But even where the mother is virtuous enough to ſuckle her own child, how rarely do we ſee her attend to the plain and obvious dictates of Nature! How often are the ſtomachs of children, even in the earlieſt ſtages of their exiſtence, loaded

loaded with a preparation little better than bread and water, to the excluſion of that mild, bland, and nouriſhing fluid, which Nature hath ſo plentifully provided! And when, from the untimely death of a parent, or from whatever cauſe, it is determined to rear an infant without the breaſt, it is then, almoſt without exception, condemned to the fare of the wretched priſoner, bread and water, at a time that the richeſt and the moſt nouriſhing ſubſtitute ought to be provided, to make up for the loſs of that ſalubrious congenial fluid, which the breaſt of woman can alone ſupply in perfection. The water pap of infants contains ſo little nouriſhment, that large quantities are obliged to be given; the conſequence of which, in the firſt inſtance, is conſiderable diſtenſion of the abdomen, with leanneſs in other parts of the body. The alvine evacuations of infants, who are thus nouriſhed, paſs through the inteſtines ſo little changed, as to appear like a ſubſtance, which would remain in a ſtrainer in which

bread and water had been ſqueezed. Copious evacuations of this kind may be obſerved ſo little altered, ſhewing ſuch trifling marks of having undergone the proceſs of animal digeſtion, as to be ſtill ſuſceptible of the acetous fermentation; need we wonder that the miſerable little object becomes pale in its countenance, and its fleſh flaccid, reſembling the chlorotic female; or that its bones become ſoft, ſpongy, and ricketty?

I have been led into theſe reflections in conſequence of a viſit of condolence which I lately paid to a fond pair, who had recently buried two amiable children. In my approach to the houſe of my friends, I thought I could diſcover one ſource of their preſent affliction. There is a winding path which leads to an open and elevated piece of ground in the neighbourhood, where I met a plump, ruddy, healthy looking young woman, with one of the remaining children of my friend in her arms. The weather was remarkably cold and bleak, and the

poor

poor little babe, with its arms and its legs naked, and a conſiderable portion of its boſom bare, and the reſt of its body but thinly cloathed, was juſt ſetting out for the benefit of the air, while my little nameſake, *with holes in his ſhoes*, upon the plan of Mr. Locke, was whimpering and lagging behind. But the nurſe herſelf was carefully wrapped up in a warm cloth cloak, tied under her chin; ſhe had mittens lined with lambs fleece on her arms, with a pair of excellent cloggs, in addition to a warm pair of ſhoes and worſted ſtockings, on her feet; and was apparently guarded at every point againſt the inclemency of the ſeaſon. I took the little ſhivering wretch in my arms, and, under pretence of indulging in childiſh prattle, obliged the woman to return, though evidently under ſtrong apprehenſions of incurring blame. I was ſhewn into the library of my friend, whoſe affliction was ſo great, that, before he could rally his ſpirits ſufficiently to receive me, I had

an opportunity, which ſeldom eſcapes literary men, of rapidly turning over and examining the title pages of at leaſt fifty of the volumes before me, till Mr. Locke's works, to uſe a nautical phraſe, *brought me up*. This valuable book ſtill further attracted my notice, by almoſt ſpontaneouſly opening at one particular page, where I obſerved the following paragraphs marked by my friend with a bracket of approbation, which, added to the thread-paper of his wife, convinced me that this chapter had been the ſubject of their mutual ſtudy.

" The firſt thing to be taken care of " is, that children be not *too warmly clad* " or *covered*, winter or ſummer. The " face, when we are born, is no leſs " tender than any other part of the " body; 'tis uſe alone hardens it, and " makes it more able to endure the " cold. And, therefore, the Scythian " philoſopher gave a very ſignificant " anſwer to the Athenian, who wondered " how he could go naked in froſt and

" ſnow. 'How,' ſaid the Scythian, 'can
" you endure your face expoſed to the
" ſharp winter air?" 'My face is uſed
" to it,' ſaid the Athenian. 'Think me
" all face,' replied the Scythian. 'Our
" bodies will endure any thing that
" from the beginning they are accuſ-
" tomed to."

Added to the celebrity of Mr. Locke's name, there is ſo much truth in this obſervation, and it has taken ſuch deep hold in the minds of many ſenſible men and women, that I fear I ſhall have the ſame arduous taſk which I experienced with my valuable friends, in attempting to caution my readers againſt its unqualified admiſſion. I conſider it, indeed, as one of thoſe maxims, which ought never to be loſt ſight of, if our children were intended all their lives to go naked, and to live in the open fields; but, ſince the cuſtoms and manners of this part of the world require that men and women through life muſt be perpetually and unavoidably expoſed to dwell in comfortable habitations, to ſit upon warm carpets,

carpets, and to ſleep on blankets and feather-beds, it certainly behoves us ſo to regulate their cloathing in infancy, as equally to guard againſt the ill effects of either extreme. If we take a view of the brute creation, we ſhall find that Nature hath kindly provided them with cloathing agreeable to the climates in which they are intended to live. In winter their coats thicken, in ſummer their ſkins are ſleek and gloſſy; in the regions of perpetual froſt they are covered with the ſofteſt and the cloſeſt fur; and in every region we may obſerve external warmth to be nearly as neceſſary as internal nouriſhment for the young of almoſt every animal. Warm rooms and impure air may enervate the body, but warm cloathing can never be injurious in cold weather. I am ſo thoroughly convinced that pure air and a warm ſkin are indiſpenſably neceſſary for children, that I never behold them with naked breaſts, legs, and arms, however hardy and robuſt, that I do not anticipate the horrid conſequences

of

of angina, of croup, or of pectoral or inteſtinal inflammation.

I had ſcarcely time to make theſe reflections, before my attention was caught by another paſſage, perhaps equally true, and equally pregnant with miſchief.

" As for his diet, it ought to be very " plain and ſimple; and, if I might ad- " viſe, fleſh ſhould be forborn as long " as he is in coats, or at leaſt till he is " one or two years old. But, whatever " advantage this may be to his preſent " and future health and ſtrength, I fear " it will hardly be conſented to by pa- " rents, miſled by the cuſtom of eating " too much fleſh themſelves, who will " be apt to think their children, as they " do themſelves, in danger to be ſtarved, " if they have not fleſh at leaſt once a " day. This I am ſure, children would " breed their teeth with much leſs dan- " ger, be freer from diſeaſes whilſt " they were little, and lay the founda- " tion of an healthy and ſtrong conſti-

" tution

" tution much ſurer, if they were not
" crammed ſo much as they are by
" fond mothers and fooliſh ſervants,
" and were kept wholly from fleſh,
" the firſt three or four years of their
" lives."

If infants are indulged with wine and animal food, they in general ſoon become vigorous and ſtrong, their cheeks ruddy, and they carry about with them the external marks of health; nor do I believe that ſuch children are more prone to eruptions and other humours, perhaps leſs ſo, than thoſe that are more poorly nouriſhed; but of this I am certain, their powers of life are too much excited, and every infantile diſeaſe to which they are liable falls upon them with double violence. Parents, therefore, ought moſt diligently to aim at the happy medium. In the days of Mr. Locke, the diet of the inhabitants of this country was very different from what it is now; and we need not be ſurpriſed to hear him give directions

in

in the feeding of children, which, there is reaſon to believe, has been the death of thouſands; ſo dangerous is it for a general rule to be offered by one, whoſe opinions it may become a faſhionable thing to adopt.

Where children are naturally remarkably ſtrong and vigorous, where they have ruddy cheeks, firm fleſh, with mottled legs and arms; ſo long as theſe characteriſtic marks of rude health continue, Mr. Locke's regimen will be proper, at leaſt ſuch children will thrive very well, and will ſtand the beſt chance to continue free from diſeaſe under ſuch abſtinence from animal food; but, on the contrary, where they are naturally puny, have pale countenances, a flaccid ſkin, and other concomitant marks of feeble powers of animalization, which in the preſent age, from a variety of cauſes, is become a very common caſe, the regimen recommended by Mr. Locke will almoſt to a certainty terminate in ricketts or dropſy. To this cauſe it is owing

owing that ſo many of the pariſh infants, which are ſent out to be ſtarved upon two ſhillings and ſixpence per week in the environs of London, may be ſeen with hollow eyes, hairy arms, wrinkled ſkins, large joints, or big bellies.

The lovely wife of my friend had brought him a number of children, which, when in health, were beautiful in the extreme; their ſilver locks, and their ſmooth and crimſon cheeks, on which the capillary arteries were viſible to the naked eye, together with the clear and almoſt tranſparent white of their necks and breaſts, giving them the appearance of ſomething ſuperior to the ordinary race of mortals, had marked them to the eye of common obſervers as what is generally called the picture of health. But the medical phyſiognomiſt could eaſily diſcern the latent miſchief, the true ſcrophulous taint, through this thin and tranſparent veil. They were thriving, however, under a regimen of generous nouriſhment, till, unfortunately,

fortunately, a ſudden appearance of the *cynanche parotidæa*, or mumps, (which in one of them terminated in ſuppuration) together with a peruſal of Mr. Locke's eſſay, occaſioned an entire alteration in my friend's ideas, and from this period a rapid change took place in the appearance of his progeny.

But the length of theſe reflections will prevent, and perhaps render it unneceſſary for me to give, a detail of the converſation which took place upon this occaſion. And ſhould any faſtidious reader conſider my paper of this day as a dull one, I have only to requeſt that he will throw it out of the collection, by putting it into the hands of ſome fond parent, who, either by pampering or ſtarving, may be ruining the conſtitution of a favourite child.

N. H.

THE

MEDICAL SPECTATOR.

NUMBER XXIV.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,

Printed, by J. NICHOLS, for the AUTHOR:
And Sold by J. PRIDDEN, N° 100, Fleet-Street;
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MERRILS, Cambridge; W. MEYLER, Grove, Bath;
and all other Bookſellers in Town and Country.

M DCC XCII.

THE MEDICAL SPECTATOR.

NUMBER XXIV.

SATURDAY, March 10, 1792.

I CANNOT refuſe my conſent to the republication of the following extracts from the chemical review of the Gentleman's Magazine.

If the Harringtonian theory of the atmoſphere is no longer a theory, but a concatenation of facts, every thing which tends toward its eſtabliſhment is of conſequence in the preſent disjointed period of aërial philoſophy. But if, on the

contrary, it is an error, a mere hypothesis, and that a fallacious one, let it experience the fate of many other hypotheses, let it be consigned to neglect and oblivion; but first let its principles be fairly and publicly canvassed, and, as its ingenious author hath somewhere observed, let the world be umpire. Let it not, however, be supposed that a complete view of this hitherto neglected writer's opinions hath been given in the MEDICAL SPECTATOR; for what hath been communicated through the medium of this publication, is a small part only of what may be collected by those who are more deeply versed in the science of chemistry.

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"*A Letter addreſſed to Dr. Prieſtley, Meſſrs. Cavendiſh, Lavoiſier, and Kirwan, endeavouring to prove that their newly-adopted Opinions of Inflammable and Dephlogiſticated Airs forming Water, and the Acids being compounded of the different Kinds of Air, are fallacious.* By Robert Harrington, *M. D.*

"The writer of this Letter appears to have dedicated no inconſiderable ſhare of his life to chemical enquiry, and particularly to an inveſtigation of the nature of air, and its application to animal and vegetable life, and to various other proceſſes in nature. His preſent work having pointed out the fallacy of the newly-adopted opinions of inflammable and dephlogiſticated airs forming water, &c. we were induced to take a retroſpective view of his former publications, to which he ſo frequently refers, and in which his opinions are ſo diametrically oppoſite to thoſe which have been favourably received, and indeed almoſt univerſally adopted, that we are not ſurprized to hear him complain of the neglect which the world has paid to his labours, and of the unfavourable manner in which they have been hitherto received; more eſpecially when we are obliged to acknowledge, that, in point of language, his ſyſtem is not drawn up with that care and propriety which it merits. But we muſt at the ſame time own, that our induſtry hath been amply rewarded by the peruſal

of all his works. His firſt volume is intituled, *A Philoſophical and Experimental Enquiry into the firſt and general Principles of Animal and Vegetable Life, &c. &c.* 1781.

"We were ourſelves ſo much ſatisfied with Dr. Prieſtley's theory of reſpiration, which conſiders the air as *receiving* phlogiſton from the blood, that we did not readily adopt the reaſoning of Dr. Harrington, till the various arguments which he brings in ſupport of it carried irreſiſtible conviction along with them; and we now acknowledge ourſelves obliged to him for a ſyſtem which, we are perſuaded, will be of the utmoſt conſequence to ſcience, as we foreſee, that, whenever it is generally received, almoſt all that has been done on the ſubject of air, at leaſt *the concluſions* that have been drawn, during the laſt ten or fifteen years, by the reſpective gentlemen to whom this letter is addreſſed, muſt fall to the ground; and that even Dr. Crawford's celebrated theory of animal heat, which approaches the neareſt to Dr. Harrington's, muſt be newly modeled; becauſe that theory, which, with Dr. Harrington's, demonſtrates *heat* to be one of the component parts of the atmoſphere, leads the unwary enquirer into an opinion that the ſun is not the ſource of heat to this globe, whilſt, on the contrary, Dr. Harrington's theory not only demonſtrates the exiſtence of *heat* in the atmoſphere, but at the ſame time actually points out the manner in which that heat is communicated by the ſun.

"The many new opinions which have been publiſhed on the ſubject of air, and which have been contradicting each other during the laſt twenty years, have not only led to this new doctrine re-

ſpecting the ſun, but have even given riſe to doubts concerning the exiſtence of ſuch a principle as *phlogiſton*. Theſe extravagant opinions, added to that of water being formed of inflammable and dephlogiſticated air, are like the abſurdities into which philoſophers were driven before they would admit that the earth, together with the whole planetary ſyſtem, moved round the ſun, as a common centre of attraction.

"We are glad to find that our modern ingenious philoſophers and aërial chemiſts are returning to the original idea, that *phlogiſton* not only exiſts, but that it is the principal agent in the mechaniſm of nature. Dr. Harrington, ſo far from having loſt ſight of this great agent, has extended its influence ſo as to conſider it an eſſential and vital part of the atmoſphere.

"We here declare that we entirely adopt his concluſions in this reſpect; and we appeal to time, as the only arbiter of this and many other diſputes. We even flatter ourſelves that that time draws very near, when Dr. Prieſtley, whom we conſider as an ardent purſuer of truth, *muſt* diſcover, and, we *hope*, will publicly acknowledge, what his own ingenious experiments have already publicly confirmed, that in reſpect to the appellation of phlogiſticated and *de*phlogiſticated airs, and the proceſs of reſpiration, he hath been maintaining opinions palpably erroneous; that whilſt he hath deſervedly enjoyed the honours of the Royal Society, and the applauſe of Europe, for his many and ingenious *experiments* on the ſubject of air, a diſcovery of the *true* ſyſtem of the atmoſphere, with its relative connexion to animal and vegetable life, hath been reſerved for Dr.

Harrington, who hath hitherto reaped only obloquy and reproach.

"His preſent work concludes with a bold and animated challenge to the gentlemen concerned, either to defend their opinions, or to renounce them. We conſider their laſt opinion, viz. that water conſiſts of inflammable and *de*phlogiſticated air, as already renounced.

"We ſincerely wiſh him to perſiſt in theſe important enquiries. Hitherto we have ſpoken only in general terms on this ſubject. In ſome future number we mean to adduce particular paſſages from his three volumes, in confirmation of the truth of our general remarks.

Philoſophical Tranſactions of the Royal Society of London. Vol. LXXIX. for the Year 1789. *Part I.*

Art. II. *Objections to the Experiments and Obſervations relating to the principle of Acidity, the Compoſition of Water and Phlogiſton conſidered; with further Experiments and Obſervations on the ſame Subject. By the Rev. Joſeph Prieſtley, LL.D. F.R.S.*

"The *decompoſition* of water is not the only chemical ſubject on which, in the pages of the Tranſactions of the Royal Society, contradictory concluſions have been drawn. We have been taught that water is compounded of inflammable and dephlogiſticated air; and the truth of the doctrine has been ſupported by an appeal to experiments conducted in the bottles and glaſſes of the firſt chemical experimentaliſts of the age. In fact, however highly, and however juſtly, philoſophers may value experimental enquiries, to us it appears evident that the rage for experiment hath been car-

carried much too far; for thouſands of experiments have been made, and obtruded on the publick, within the laſt twenty years, from which no juſt or uſeful deductions whatever have been drawn; whilſt the theory of Dr. Harrington, which aſſerts, and, in our opinion, with fewer and leſs oſtentatious experiments, ſatisfactorily proves, that atmoſpherical air is compounded of *fire*, *water*, and *the mephitic acid*, on which a juſt idea of the life of animals, the growth of vegetables, and many other important proceſſes in nature depends, hath been prevented from making its way in the world, by the erroneous concluſions drawn from many of thoſe experiments to which we allude.

"We are happy, however, to find the author of the paper before us, who is unqueſtionably the moſt celebrated of chemical experimentaliſts, a ſecond time giving up the doctrine of the decompoſition of water, which he now appears to be clearly convinced is an erroneous idea. It gives us pleaſure alſo, to find him ſtanding forth ſo far a champion for the exiſtence of phlogiſton as to agree with Dr. Harrington, that inflammable air conſiſts of that principle united with water. From theſe favourable omens we cannot help flattering ourſelves that he will very ſoon be convinced that phlogiſton is not only one of the component parts of inflammable air, but, in a leſſer proportion, that it is the grand vital principle of the atmoſphere; and that he will, finally, become an advocate for the theory of that inſulted philoſopher, whoſe *chemical diſcoveries*, more eſpecially on the ſubject of the atmoſphere, however inattentively drawn up in point of language, are, in our opinion, the moſt important, by far the moſt important,

ant,

ant, of any that the eighteenth century hath hitherto produced.

" Should the celebrity of Dr. Prieſtley's name, as an aërial chemiſt, ſo far influence and prejudice the minds of our readers as to induce them to conſider theſe as very bold and unwarrantable aſſertions, we pledge ourſelves to produce incontrovertible arguments in ſupport of them. It may, perhaps, be ſufficient at preſent to refer to this doctrine of the decompoſition of water, which is an erroneous concluſion, drawn from experiments which demonſtrably prove the truth of Dr. Harrington's theory of the formation of the atmoſphere; for the reſult of thoſe experiments is preciſely ſuch as we had a right to expect from a previous knowledge of that theory.

" But, for an argument perhaps ſtill more ſatisfactory to the generality of our readers of the truth of our aſſertions, we will appeal to the neceſſity which we foreſee Dr. Prieſtley will be under if he perſeveres, as we ſincerely hope he will, in his aërial enquiries of *reverſing* the names of phlogiſticated and *de*phlogiſticated air. Whenever this ingenious chemiſt ſhall acknowledge, that what he hath hitherto denominated phlogiſticated air is air deprived of part of its phlogiſton, and that *de*phlogiſticated air is air containing a larger portion of that principle than atmoſpherical, though a leſs than inflammable air, our readers will then remember that ſuch alteration of theſe names has now been foretold, and that, on the completion of this prediction, perhaps the general reception of Dr. Harrington's theory of the formation of the atmoſphere may finally depend.

" Should

"Should it appear extraordinary that the name of Dr. Harrington ſhould ſo repeatedly occur in the review of a paper of Dr. Prieſtley, in which the name of Dr. Harrington has not once been mentioned, we would offer, as an apology, *that his name ought to have been mentioned*, and that we conſider every valuable paper, and every well-conducted experiment, on the decompoſition of water, the principle of acidity, phlogiſton, and, in ſhort, every chemical diſquiſition which leads to a diſcovery of the true nature of the atmoſphere, and, of courſe, its relative connexion to animal and vegetable life, to the proceſſes of combuſtion, putrefaction, and perhaps fermentation, as ſo many neceſſary and previous ſteps, leading to that important object, which he hath, in our opinion, long ſince attained."

"*A Letter to Dr. Prieſtley, Meſſ. Cavendiſh, Lavoiſier, and Kirwan, endeavouring to prove that their newly adopted opinions of inflammable and dephlogiſticated airs forming water, and the acids being compounded of the different kinds of air, are fallacious. By Robert Harrington, M. D. (Continued from Gent. Mag. 1789, p. 841.)*

"Previous to our taking a more complete retroſpective view of this writer's former publication, it may, perhaps, be expected that we ſhould attend more particularly to the work immediately before us. He ſets out with obſerving, that the theory to which he objects, and which has been adopted under the ſanction of ſuch great and reſpectable names, is in direct oppoſition to all our rudiments and eſtabliſhed principles in chemiſtry. If water, as hath been aſſerted, is formed of inflammable

flammable and *de*phlogifticated air, he fhews, by very juft and accurate reafoning (fee pp. 2, 3), that a mixture of charcoal and nitre would make directly the fame body as water, and of courfe, that gunpowder and water are nearly the fame thing.

" In the fecond fection it is fhewn, by experiments conducted in a true chemical and philofophical manner, how water and fixed air are formed in the deflagration of bodies. *But in the metallic combuftion (fee p. 14.) we can more clearly mark the decompofitions. As iron is an earth united to phlogifton, fo the water and acid, which form the refiduum of empyreal air, when burnt or decompounded, we can clearly find in the calx of iron. Dr. Prieftley, in reviving the calx with inflammable air, hath difcovered the water which the phlogifton expels; and it is well known to chemifts that they repel one another.*

" His third fection is upon the compofition of fixed air; and having, in the former, fhewn that an acid and water are produced upon the decompofition of fixed air, in this he produces experiments in proof of it; to which we muft refer the reader.

" The fourth fection appears to us ftill more important. It is on the burning of dephlogifticated and inflammable airs; and in this fection he fatisfactorily explains and reconciles the different experiments of Mr. Cavendifh and Dr. Prieftley, fhewing that the acid fometimes efcapes, and is fometimes left; that it comes from the dephlogifticated air; and that the efcape of the acid is the caufe of that extraordinary phænomenon, the explofion of gunpowder.

" *Che-*

" *Chemiſts* (he adds) *never thought of the acid eſcaping united with fire; but this is clearly the caſe. To aſcertain this, I took a quantity of inflammable air, and made it paſs into a veſſel, filled with ſtrong nitrous acid, with its mouth downwards. By this proceſs it imbibes a certain quantity of the nitrous acid. To aſcertain this, I paſſed a part of the inflammable air through water, and received the nitrous acid from it again, and it appeared to be the true nitrous acid. This inflammable air, and the nitrous acid, if fire is put to them in a cloſe veſſel, will explode; but, if the acid is taken from it, it loſes this power.*

" *There is an evident mixture of inflammable air and the nitrous acid; when fired, there is only a ſmall quantity of Water left in the reſiduum, juſt anſwering to that water which inflammable air is known to contain; but the phlogiſton and the nitrous acid have diſappeared. The phlogiſton, which is fire highly neutraliſed and concentrated, is decompounded, the fire flying off with the nitrous acid. That it has eſcaped with fire is certain, from there being little or none in the reſiduum; and certainly chemiſts will not argue that the nitrous acid could be changed into water. But, to ſet aſide ſuch unchemical ideas, the reſiduum is far ſhort, in weight, to the inflammable air and acid.*

" Dr. Harrington conceives the experiment to be erroneous, which chemiſts have thought ſatisfactorily proved, that phlogiſton and dephlogiſticated air form fixed air; ſee p. 35.

" If our limits would permit, it would not be difficult to ſhew that Dr. Harrington, in his fourth ſection, hath proved that the experiments of theſe celebrated philoſophers directly contradict their own theories, and, at the ſame time, eſta-

bliſh his. But, as the laſt article which came under our conſideration ſufficiently ſhews that theſe unchemical theories are now no longer maintained by the gentlemen concerned, it is unneceſſary for us to purſue the ſubject any further. All, therefore, that remains for us to do is, to acknowledge ourſelves obliged to the writer of this letter (which bears date ſo long ſince as the 10th of March 1788) for his reſolution in publickly ſtanding forth as the aſſerter of what he knows and feels to be the truth. We conſider attention to accuracy and correctneſs of expreſſion but as the minor duty of reviewers, who ought to take every opportunity of promoting the cauſe of ſcience and of truth. We have obſerved, with real concern, the faults of this gentleman, as a writer, ſeverely and ſarcaſtically pointed out, whilſt his diſcoveries as a philoſopher have been either totally miſunderſtood, piratically invaded, or neglected, and deſpiſed. And, in one review of eſtabliſhed reputation, whoſe deciſions upon other occaſions we have often had reaſon to admire, we have, with ſtill greater concern, ſeen him accuſed of *hobbling* after Dr. Prieſtley *. In anſwer

* It is a very degrading and unpleaſing circumſtance, that controverſial writers ſhould uſe theſe harſh expreſſions. We wiſh we could acquit Dr. Harrington of having given into them; but, though we cannot entirely do this, we can readily make allowance for a man who hath ſuffered ten years of mortification and neglect, and other irritating circumſtances, from his opponents, whom, notwithſtanding, he appears happy upon every occaſion to ſpeak of in the warmeſt terms of applauſe, which will appear from the following paragraph, p 81. of his Experimental Enquiry: "I muſt not paſs over the opinion of the great Dr. Prieſtley, that ingenious inveſtigator of nature, who is deſervedly eſteemed the firſt philoſopher of his time, and whoſe opinions and experiments are anxiouſly ſought after by the

anſwer to this ridiculous and unjuſtifiable charge, we would obſerve, that Dr. Prieſtley himſelf, if he wiſhes to attain a clear and comprehenſive view of this very ſubject, on which he has already gained ſuch repeated marks of public applauſe, muſt condeſcend to tread in the ſteps of Dr. Harrington."

thewhole world. But the greateſt men that have lived have been known to err; for Nature's operations are ſo myſterious, that man, in his reſearches for inveſtigating them, is often miſtaken. When I conſider that this excellent philoſopher has publiſhed an opinion on Reſpiration and the uſe of the blood, which is directly contradictory to mine, I am prepared for the difficult aſſent of my readers. But no man, let him be ever ſo eminent, ſhould be implicitly followed, but ſhould have an impartial canvaſs before the public. For my part, no man's opinion ſhall ever withhold my humble reſearches, or prevent me from exerciſing my judgement; therefore I ſhall here, as far as I am able, give a candid inveſtigation of this great queſtion, and let the World be umpire; for it is a queſtion of the firſt moment to mankind, and deſerves the moſt candid and ſerious conſideration; for the nobleſt purſuit is that of ſearching into the grand arcana of Nature, therein worſhiping and contemplating upon the omnipotence of God, the Great Author of all things; which purſuits will exalt our ſpecies above the reſt of animals, and make us feel our immortality."

THE

MEDICAL SPECTATOR.

NUMBER XXV.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

LONDON,
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M DCC XCII.

THE MEDICAL SPECTATOR.

NUMBER XXV.

SATURDAY, MARCH 17, 17

ST MARYS HOSPITAL
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Vivet post funera virtus.

"On Death's cold tomb must flourish Fame."

Grove of Fancy.

IT is a melancholy reflection, and one that has been made and repeated a thousand times, and which will hereafter be repeated a thousand times more, that fame, for which literary men of the finest genius and the most deserving minds have perhaps the most anxious desire, is often withheld by the world

till it is too late to gratify the feelings of thoſe by whom it has been fairly and honourably earned. The preſent age abounds with inſtances of the truth of this remark, but perhaps in none is it more ſtrikingly diſplayed than in the juſt and elegant tribute of poſthumous applauſe which hath ſo lately iſſued from the pen of Dr. Beddoes; and I feel uncommon ſatisfaction in being able to aſſure my readers, that this gentleman's Analyſis of Mayow's chemical Opinions is as juſt and accurate as his reflections are manly and generous; and I have no doubt, had the taſk in which *(haud paſſibus equis)* I am now engaged devolved upon him, that he would have felt equal pleaſure in doing the ſame juſtice to injured living merit which he hath ſhewn to neglected and departed genius.

After the ſucceſsful eulogium of Dr. Beddoes, any attempt to leſſen or depreciate, or even to exaggerate, the genius of Mayow would be futile and

fallacious.

fallacious. It muſt indeed be acknowledged, that, in many of his experiments, Mayow is certainly equal to the beſt of our modern moſt celebrated aërial philoſophers. But I would go further than this; I would ſay, that, in his doctrines and deductions from thoſe experiments, he often advances conſiderably beyond them; for he proves, by the teſt of experiment, that the general aërial opinion of his own age was true, that the exiſtence of life and flame equally depends upon the communication of a *pabulum* from the atmoſphere —a "SPLENDID TRUTH," which, till lately, was ſcarcely to be found in the annals of modern chemical philoſophy. If any veſtige or remnant of *old chemiſtry* yet remains uneradicated from the minds of my readers, it will be unneceſſary to produce one ſingle inſtance of the truth of this remark, that the exiſtence of life and flame depends upon the communication of a *pabulum* from the atmoſphere; for it has been

regularly handed down as a ſelf-evident fact from the days of Hippocrates till the æra of Dr. Black. But, as modern philoſophy hath ſo puzzled and confounded the plaineſt and the moſt naked chemical facts, it may be proper to produce one or two quotations, which I ſhall take from a writer who flouriſhed in the ſame century, though nearly fifty years previous to Mayow.

" Reſtat igitur ut tenuis et ſyncerus " aër idcirco ſit neceſſarius, ut *flammæ* " *tanquam* PABULUM accedat, et libero " flatu alius aliuſque accedens, quaſi " *paſtionem* ſe offerat flammæ *devoran-* " *dam.* Velim equidem animum co- " gitationemque referri ad ignem, qui " in medicis cucurbitulis aut in anguſto " conclavi diligentur obturato concludi- " tur. Hunc enim *magnam* ambientis " aëris *partem* ABSORBERE, id plane de- " clarat, quod dum rime vel tenuiſſi- " mæ patefient atque reſerabuntur, con- " feſtim ac repente ſumma vi novus " intro aër irruet et ſe ingurgitabit, ut

" eum

" eum nimirum *reſarciat* qui ante
" fuerit *exhauſtus**."

" Aërem nobis circumfuſum arteri-
" arum pulſu corporis univerſi calorem,
" eum vero quem ſpirando ducimus
" unius maxime cordis calorem reſpira-
" tione tueri et conſervare. Quoad vi-
" vimus neceſſario ſpiritum de cœlo
" ducimus, nec animus ſine anima, nec
" anima ſine ſpiritu et aëre, teneri con-
" ſervarique poteſt†."

" Non enim externus aër, rudis, fri-
" gidus et impurus, et derepente irruens
" fieri poteſt interioris ſpiritus conveniens
" pabulum, ſed hunc quemadmodum
" et alimenta neceſſe eſt *paulatim* MU-
" TARI et familiarem innato ſpiritui
" qualitatem, longiuſcula mora recipere.
" Poſt hæc autem elaboratus diligenter
" ſpiritus, in *ſiniſtrum* cordis ventricu-
" lum arripitur, ex quo, accedente
" etiam ſanguinis vapore, qui ex dextro

* FERNELL. " De Spirit. et innato Calido," Lib. IV. Cap. iii. p. 146.

† Ibid. " De Morb. Cauſ." p 369.

" ventriculo permanavit, vi cordis inſita,
" ejuſque innato ſpiritu et ingenti calo-
" ris incendio, haud ſecus atque in for-
" nace ſpiritus procreatur vitalis, qui
" demum in omne corpus per arterias
" effuſus, ſalutarem impertit toti calo-
" rem *."

Theſe, it muſt be confeſſed, are obſcure hints; but few readers, I believe, in the preſent day, would have expected to find ſuch hints as theſe in Fernellius. And the firſt quotation will ſhew, that Mayow, in the following, has not more forcibly expreſſed the opinion of the conſumption of his nitro-atmoſpherical particles, the *pabulum ignis*, in the cupping glaſs.

" Jam vero inquiramus, quâ ratione
" ſpatium in cucurbitulâ ſtatim a flam-
" mæ extinctione pene vacuum fiat.
" In promptu eſt hic dicere, particulas
" igneas, aereaſque in flamma motu ve-
" hementiſſimo exagitatas, valdeque rare-
" factas eſſe; eaſdemque verò poſt

* Fernel. De Fundion. et Humorib. Lib. VI. p. 297.

" flammæ

" flammæ extinctionem à motu ſuo
" ceſſare, et condenſari; ita ut parti-
" culæ iſtæ non amplius jam preſſuræ
" aëris ambientis reſiſtendæ valeant.
" Verùm reſponſum hoc minùs ſatis-
" facere videtur: etenim probabile eſt,
" aërem flammæ confertim immiſceri;
" utpote cui in pabulum cedit; ita ut
" ne minima quidam flammæ pars ſit,
" in qua aëris aliquantulum non exiſtit:
" ut verò ſi aër per flammam copiâ
" ſatis amplâ diſſeminatus fuerit, vide-
" tur quòd idem poſt flammæ extinc-
" tionem in tantum non condenſaretur,
" quantum ad ſpatium adeò vacuum in
" cucurbitulâ efficiendum requiritur.

" Quapropter ſtatuendum eſſe arbi-
" tror, aërem flammæ immixtum, per
" ejuſdem deflagrationem particulis ni-
" tro-aëreis et elaſticis mox deprivari;
" ita ut aër iſte non tantum igni ſuſti-
" nendo inidoneus fiat, ſed etiam ela-
" tere ſuo ex parte deſtituatur. Hinc
" cum flamma in vitro incluſa, parti-
" culas nitro aëreas exhauſerit, eadem

" mox expirat, ſpatiumque intus con-
" tentum, non tantum ob particularum
" ignearum motum imminutum, ſed
" partim etiam ob particularum elaſti-
" carum defectum inſtar vacui ſe ha-
" bet *."

And now let me declare, in the language of Dr. Beddoes, with which I confeſs myſelf to be charmed, that theſe quotations " are not produced in
" the ſpirit of oſtentation, diſplaying a
" mouldy ſtore of captious and quib-
" bling erudition;" for ſuch erudition I neither do, nor am I ambitious to, poſſeſs; nor do they proceed from
" malice, in the ſpirit of Macbeth's
" weird ſiſters, employing her ſpells
" and incantations to *blaſt* living merit." No; they originate in the ſpirit of honour and integrity, of candour and of truth, boldly attempting to *cheriſh* and *ſupport* that *living merit* which hath been ſo long and ſo ungenerouſly neglected.

* Mayow, De Sp. Nitr. Aër. p. 97.

There

There is no difficulty in admitting that Mayow diſcovered many, I will not ſay "the major part," of thoſe *ſplendid truths* which adorn the writings of Prieſtley, Scheele, Lavoiſier, Crawford, Goodwyn, and other philoſophers of this day.—Science, truth, and candour, compel me alſo to admit, that he hath made ſome conſiderable *ſteps* towards an anticipation of the Harringtonian Theory of the Atmoſphere; but that he was acquainted with the *true* compoſition of the atmoſphere is too large a conceſſion to be eaſily granted. His nitro-atmoſpherical, or fire-air particles are certainly only different names for phlogiſton or fixed fire. But Mayow had no idea of theſe being combined with water and the mephitic acid in a ſtate of *neutraliſation* *. And when

* It muſt be owned, that Mayow knew and clearly expreſſed the idea that air is a *compound* body; but in regard to the compoſition itſelf, the following quotation will ſhew how little he knew of its real nature. "Vis elaſtica, ſive impetus reſiliendi à corporum rigi-
"dorum inflexione provenit; in quantum ſc. ea inflexa
"ad

when he aſſerts, that certain baſes are rendered acid by the acceſſion of nitro-atmoſpherical particles, or what hath ſince been denominated the acidifying principle, is he not involved in the ſame error and confuſion in which our modern aërial chemiſts appear ſtill to be triumphing?

So far are theſe chemical philoſophers from comprehending the true compoſition of the atmoſphere, that

" ad priſtinam figuram redire conantur, et quidam veri-
" ſimile eſt aëris elaterem ab hac demum cauſâ præcipue
" oriri. Nimirum arbitrari fas ſit, particulas nitro-
" aëreas, igneaſque ipſis particulis aëreis infixas eſſe,
" partemque earum magis activam conſtituere. Quan-
" quam enim particulæ aëreæ valde minutæ ſint, eæ-
" demque pro elemento ſimpliciſſimo vulgò habeantur,
" mihi tamen neceſſarium eſſe videtur, eaſdem *quid com-*
" *poſitum ſtatuere*; earumque partes alias ramoſas eſſe,
" ſibique mutuò *tanquam uncis invicem implicitis*, firmiter
" adhærere; alias vero maxime ſubtiles, ſolidas, læves,
" agiles, igneas, et revera elementares eſſe; quæ inter
" particulas alteras firmiter defixæ, eas obrigeſcere, effi-
" ciunt; haud multo ſecus ac ferro obrigeſcentia, et
" elater, à particulis nitro-aëreis ei ab igne impertitis,
" inducuntur; prout antea oſtendere conatus ſum. In
" eo autem quòd particulæ aëris obrigeſcentes, ab atmo-
" ſphæræ iis incumbentis pondere compreſſæ, inflexæ-
" que ſe extendere connituntur, vim aëris elaſticam
" conſiſtere exiſtimo." P. 115.

they

they conſider it as conſiſting of one air incloſed within another, like the coats of an onion, or the *pyxides mirabiles* of modern jugglers; or the "*partes ramoſas, tanquam uncis invicem implicitis*" of Mayow. Hence it is, that we are perpetually hearing of the *de*phlogiſticated air of the atmoſphere, or the *pure* or the *vital* air, as it has been called by ſome, being "*properly ſpeaking the moſt proper*," or "*the only proper*," for reſpiration. If they wiſh to extricate themſelves from a labyrinth of error and perplexity, let them diligently attend to the arguments of Dr. Harrington, and *diſcover* that the air of the atmoſphere is a homogeneous fluid, conſiſting of fire combined with the mephitic acid and water, in a ſtate of chemical union; that it really contains NO *de*phlogiſticated air, but only one of the conſtituent parts of what they have falſely and injudiciouſly ſo denominated, which is in fact an aërial com-

pound, conſiſting of fire and the nitrous or the muriatic acid and water. And if they will attend to this gentleman's further explanations, they will alſo ſoon *diſcover* the true conſtituent parts of every other aërial compound with which they have long been working in the dark. They will *diſcover* a theory of the formation of air, which has ſtood the teſt of *every* experiment which they have been able to contrive, and which the author of that theory himſelf deſires only their own experiments to demonſtrate. But perhaps I am addreſſing myſelf in vain to age and experience; I will therefore direct what I have further to ſay on this important ſubject to the younger and more flexible, the uncontaminated minds of my favourite philoſophers in embryo.

And theſe I would adviſe " to throw " away with ſcorn (many of) the vague " ideas" of our modern aërial philoſophers. I would adviſe them to attend diligently to the theories and explana-

tions of Dr. Black, till they are well grounded in his ideas of *latent heat*; and when they have advanced under the auſpices of this juſtly celebrated philoſopher to that experiment in which he renders lime-water turbid by *ex*ſpiring through it, I would then adviſe them to guard againſt the fallacious explanation which *he* has given of that important phenomenon, which, if I am not ſtrangely miſtaken, was the *reverted guide-poſt* that led Dr. Prieſtley aſtray.

I would now adviſe them to attend to "the MAYOW of another age;" to make themſelves maſters of Dr. Harrington's explanation of that phenomenon, which like a *ſure guide* will ſoon enable them to comprehend the true nature of the atmoſphere; its formation, deſtruction, and renovation; its relative connexion with animal and vegetable life; with the combuſtion of inflammable ſubſtances; and an immenſe variety of other important ſubjects,

jects, the bare recital of which would occupy a much larger ſpace than in the ſcanty limits of a periodical paper I can at preſent afford to beſtow: and I have only one thing further to adviſe, that they will not ſuffer a want of accuracy and correctneſs of expreſſion to prevent them from profiting by the genuine precepts of ſound philoſophy, which pervade the volumes of Dr. Harrington, whoſe eulogy, "*mutato* "*nomine*," may be given in the words of Dr. Beddoes.

But, firſt, it has been remarked, and I believe with juſtice, that an author is ſeldom better pleaſed than when he ſees his own works repeatedly quoted. I flatter myſelf I am poſſeſſed of a grateful heart: I have received uncommon pleaſure from the production of Dr. Beddoes; and that I am no niggard in this ſpecies of applauſe, the following additional quotations will abundantly teſtify.

"I can

" I can juſt conceive it poſſible, that " a ſingle important diſcovery may be " made without much ſagacity: an " undiſcerning eye may perhaps by " chance be ſo placed as to be aware " of the manner in which Nature per- " forms ſome *one* of her hidden opera- " tions; but *he* who ſhall ſurprize her " often, muſt be allowed to have the " diſcerning eye, and to know where " the proper point of view is to be " found."—" Conſider only the quan- " tity or maſs of truth which he ſurely " detected, *per ſua pericula ſuaſque me-* " *ditationes*," and then name, among his " predeceſſors or contemporaries, a ri- " val fitted to contend with him for the " palm of philoſophy."

" The compariſon of the dates will " ſhew, that the Treatiſe on Reſpira- " tion was publiſhed in his twenty- " third year."

Whoever reads Dr. Beddoes' work with attention, muſt be ſtruck with the coincidence of a variety of circum-

ſtances

ſtances which ſhew that the opinions of the living and of the departed philoſopher have experienced a ſimilar fate. Their minds appear to have been equally ardent; and it is remarkable, that they have both purſued, in a variety of circumſtances, the ſame track of enquiry. Whatever ſuperiority the one may have in point of language, the other diſcovers in the knowledge of his ſubject and the perfection of his theory. And what Dr. Beddoes hath obſerved reſpecting the honours due to the moderns, may with truth be applied to Dr. Harrington, *viz.* "that "his diſcoveries ſet out from a different "point;" and though I will not ſay they "proceeded in a different train," yet "in perfect ignorance of him, and "therefore without any aſſiſtance from "him," whether the ſame may be truly ſaid of every other modern aërial philoſopher, I think Dr. Beddoes himſelf, in the firſt and the ſecond pages of his preface, hath

hath rendered in ſome meaſure problematical.

" Henceforward, I flatter myſelf, " that he will ſhare the glory of Verulam and Newton; and that when the " enthuſiaſm of an Engliſhman ſalutes " his country, as

" Magna parens frugum !—

" Magna virum !—

" Mayow (Harrington) will be ranked " among the nobleſt productions of " the latter ſort; then due honours " will at laſt be paid to the genius of " Mayow (Harrington), and perhaps a " ſide-glance of approbation may occa- " ſionally be caſt upon the deſign of " reſcuing from oblivion his long-loſt " memory *(from inſult his long-neg- " lected reputation)*."

But " circumſtances no longer per- " mit me to new-model this ſlender " MONUMENT to NEGLECTED GENIUS. " Whether it be worthy of HIM in " honour of whom it is erected, or " HE be worthy of the labour of the

" architect, now remains to be deter-
" mined by thoſe who as yet know
" little of either."

" By *one* at leaſt, I will not ſay I
" am ſure, but I *hope*, the workman-
" ſhip will be viewed with all the in-
" dulgence that can be deſired."

* * *

THE

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A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

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THE MEDICAL SPECTATOR.

NUMBER XXVI.

SATURDAY, MARCH 24, 1792.

——— Quid non mortalia pectora cogis,
Auri ſacra fames! VIRGIL.

"I come with pleaſure to the next ſhort treatiſe; for it brings me within full view of the concluſion, perhaps too long delayed." BEDDOES, p. 56.

DURING one of my late ſpectatorial rambles, my curioſity was much excited by the appearance of a handſome funeral moving from the door of a very mean-looking habitation in the Borough. Looking with an

eye of enquiry, one of the crowd, without my aſking the queſtion, informed me, with all that barbarous wit for which the lower claſs of people in this country is remarkable, that it was only Jemmy Taylor going to ſift cinders in H***. *De mortuis nil niſi bonum* is a reflection ſo very natural to the mind of man, that I muſt confeſs this unmerciful ſentence ſtill further excited my curioſity; and I was very ſpeedily enabled to pick up the following ſketch, which, in return for the critical extracts, ſhall be preſented as a biographical morſel to my valuable friend Sylvanus, for his next Obituary.

I found that it was the funeral of the late Mr. James Taylor, better known, as it already appears, by the name of Jemmy Taylor, who adds one to the liſt of hereditary miſers which this age has produced. Born and nurtured in the lap of parſimony, a handſome fortune, which he received by inheritance, gradually accumulated in his hands to the

the enormous ſum of two hundred thouſand pounds, and upwards. The Biographer of *Miſery* might here pourtray a character equal to that of his hero, Elwes, who was perhaps ſurpaſſed by Mr. Taylor in one trait of domeſtic œconomy. Mr. Elwes, upon particular occaſions only, is recorded to have carried his boiled egg in his pocket. Mr. Taylor, on the contrary, at all times had a tin box in his, containing the ſupply of butter for his family uſe, thus effectually preventing his houſekeeper from extravagance in that expenſive article. He ſifted the cinders himſelf, and with his own hands always delivered the aſhes to the duſtman, nearly in the ſtate of an impalpable powder. Dreſſed in the meaneſt garments, with ſtockings which, in the ſuperaccretions of his own darning, had long loſt their original colour, he made no ſcruple on a wooden ſkewer to carry his morſel of meat or liver through the ſtreets. Yet this miſerable

diſeaſe of the mind out of the queſtion, like Mr. Elwes he was an honeſt and a good man, and, what is remarkable, capable of doing generous and charitable actions. Private donations from ſuch a man, to the amount of five guineas or more at one time, and ſuch he is known to have performed, muſt be conſidered as no unequivocal marks that even in ſuch a miſerable character the ſeeds of generoſity had been originally planted, which it is poſſible, by a proper education, might have been cultivated ſo as to have grown up, and got the better of the deſpicable weed by which they were ſtifled.

The true miſer is generally a harmleſs, and perhaps always a pitiable character, and, of the two, I think preferable to the ſpendthrift; for in the latter the *ſui profuſus* is moſtly accompanied with the *alieni appetens*, which I believe is not often the caſe with thoſe who are afflicted with this truly miſerable diſeaſe of the mind; for although it hath not yet obtained

tained a place in the *nosologia methodica*, it must be a disease of the intellect that could induce a man, possessed of so large a sum, to stand like a child at the window of a pastry-cook, or the basket of a barrow-woman, wishfully looking at a cake or an apple, evidently without being able to summon resolution sufficient to part with a penny in order to purchase so slight a gratification; but that such were the feelings of Mr. Taylor was notorious to the school-boys in the street.

It is natural to suppose that a character like this must have been a tempting object for the assiduity of the *hæredipetæ*, whose attacks upon the miser rarely succeed. And, notwithstanding the imbecillity of mind which hath just been pointed out, the following anecdote will shew that he was not wanting in discernment. An attack of this kind having once been made upon him, by a person who was well acquainted with his riches, it was judiciously carried on, by first ex-

citing an alarm that he had been nominated for the expenſive office of ſheriff, and then claiming conſiderable merit in getting him excuſed. It was not unreaſonable to expect that the idea of ſuch an eſſential ſervice muſt make a great impreſſion on a mind like his, more eſpecially after he had been heard to declare that he would certainly *remember* it. And it is now doubtful, whether an act of diſcernment, or a ſudden impulſe of generoſity, induced him to reward this obliging friend, by *transferring* into his hands, in the BANK OF ENGLAND, a penny cheeſecake.

I remember but one inſtance where the vice of parſimony was carried to a greater pitch; and that was in the caſe of a wealthy miſer at the point of death, who, for the relief of a painful and fatal diſtemper, could be prevailed upon only to take medicines which he believed had been preſcribed for, and bought by, an indigent neighbour, afflicted with a complaint very different from his own.

Gracious

Gracious God! is it poſſible! I was exclaiming, upon the recollection of this circumſtance. Is it poſſible, that, while reaſon holds dominion in the mind, ſuch inſtances of folly and madneſs can exiſt! When the crack of a whip, the rattling of a lofty phaeton, and the prancing of four cropped greys, and two attendants on horſeback, together with the familiar, flying, and impertinent ſalutation of *How do old boy*, rouzed me from my reverie time enough to recognize, as he paſſed, the perſon of my old friend Whirligig, from Oxford, who had juſt come into the poſſeſſion of an eſtate of barely 500l. per annum, not yet diſencumbered from a *poſt obit* of three thouſand. Gracious God! I again exclaimed, it is *im*poſſible! the mind is deranged, and a ſtatute of lunacy is the only remedy.

And what jury, let me aſk, could withold a ſtatute of lunacy upon ſimilar occaſions? Does madneſs conſiſt in the expreſſion or the act? in words or in

deeds? But, if I proceed, I ſhall forget that I am not the General, but the Medical, SPECTATOR. * * *

I ſhall this day communicate the laſt article which relates to the HARRINGTONIAN PHILOSOPHY, and which conſiſts of a Review of Dr. Prieſtley's *Obſervations on Reſpiration, in the Philoſophical Tranſactions of the Royal Society of London. Vol. LXXX. for the Year* 1790. *Part I.*

" It is with ſingular pleaſure and ſatisfaction that we obſerve this ingenious experimentaliſt (who has for ſo many years given the *ton* in chemical philoſophy) gradually advancing towards an adoption of the Harringtonian theory of the atmoſphere, which hath been long conſidered by us as the only true and ſcientific ſyſtem. But Dr. Prieſtley, who is a rigid experimentaliſt, ſeems ſtill determined to diſpute every inch of ground; and we rather ſuſpect not only to diſpute, but abſolutely to puzzle the ſubject: for he ſtill maintains that phlogiſton is emitted from the blood in the act of reſpiration; but at the ſame time, and in the ſame ſentence, alledges, that from ſome late experiments he is " now *convinced*, that, beſides the emiſſion of phlogiſton *from* the blood, dephlogiſticated air, or the acidifying principle of it, is at the ſame time received into the blood."

" Dr.

" Dr. Prieſtley has only to take one retrograde ſtep further, and to *diſcover*, which we ſincerely hope he will ſoon do, that what he, and moſt other chemiſts, have improperly called *de*phlogiſticated air, is air abounding with phlogiſton. He will then perceive that the *de*phlogiſticated air, like atmoſpherical air, communicates that phlogiſton, which is one of its conſtituent parts, *into* the blood for a variety of important purpoſes in the animal œconomy, but primarily to give the vital ſtimulus to the heart and arterial ſyſtem.

" In the very next ſentence Dr. Prieſtley, apparently abandoning the acidifying principle, adds, " Still, however, there remained a doubt how much of the dephlogiſticated air which we inhale enters the blood. We have already, upon a former occaſion, objected to the idea, that *de*phlogiſticated, or any air, in its aërial form, can be received into the maſs of blood," through the membrane of the lungs. Dr. Prieſtley, indeed, ſeems not entirely unaware of this objection; for in the next paragraph he ſays, " Dr. Goodwyn's very ingenious obſervations prove, that dephlogiſticated air is *conſumed*, as he properly terms it, in reſpiration." Dr. Goodwyn has certainly made uſe of this qualifying expreſſion; but he alſo aſſerts that *de*phlogiſticated air, as he, in common with Dr. Prieſtley and others, falſely calls it, enters the blood in the act of reſpiration. The word *conſumed*, perhaps, approaches to the proper idea; but ſtill it is an expreſſion not ſufficiciently clear or comprehenſive; for the fact is ſimply this: the blood, during its circulation through the lungs, hath the power of *decompoſing* both atmoſpherical air and that aërial fluid which modern chemiſts falſely denominate *de*phlogiſti-

cated

cated air. Theſe airs are decompounded in the lungs, and one of their conſtituent parts, viz. phlogiſton, is *attracted* by the blood, and enters into its compoſition, but not till it hath loſt the eſſential qualities of air.

"That the common air of the atmoſphere is a compound body, conſiſting of *fire* or phlogiſton, combined with the *mephitic acid* and *water*, we have already declared our belief in the moſt explicit terms; and that *de*phlogiſticated air is alſo a combination of phlogiſton on one part will be eaſily believed by ſuch of our readers who know that Dr. Prieſtley has already admitted that phlogiſton is one of the conſtituent parts of inflammable air, becauſe, this being granted, it neceſſarily follows, that *de*phlogiſticated air, as it is called, which Dr. Harrington, in his *Thoughts on Air*, hath ſhewn us may be formed of imflammable air and the nitrous acid, ſo as to do for combuſtion, is a neutralized compound, conſiſting on one part of phlogiſton, concentrated fire, caloric, or principal of inflammability, let philoſophers call it which they pleaſe. The reaſon which Dr. Prieſtley aſſigns for his "doubt how much of the dephlogiſticated air which we inhale enters the blood," is as follows; "becauſe part of it is employed in forming the fixed air which is the produce of reſpiration." Short as this cautious ſentence is, it affords matter for copious remark. It is now upwards of twenty years ſince Dr. Black, by a neat and very ſimple experiment, well known to every modern chemiſt, demonſtrated the exiſtence of fixed air in that which is expired from the lungs, by its effects on lime-water; far be it from us to derogate from the merit of this admirable philoſopher, whoſe ex-

periment was immediately admitted as demonſtration that fixed air is ſecreted by the lungs and thrown off in reſpiration. But aërial philoſophy was then in its infancy; the ground-work was laid by the hand of Dr. Black; and we ourſelves were forward in our applauſes, and ſtill heartily concur in the propriety of that honorary mark of diſtinction * which was conferred upon him for this ingenious experiment: and we flatter ourſelves that the day will arrive when Dr. Harrington, his pupil, will receive as brilliant marks of applauſe for completely explaining it. Dr. Harrington, whoſe diſcovery of the true conſtituent principles of the atmoſphere neceſſarily led him to this celebrated experiment, well knowing that atmoſpherical air conſiſts of a combination of phlogiſton with the mephitic acid, and that the reſpiration of animals is a decompounding proceſs, in which the former of theſe ingredients is taken into the blood by elective attraction, was at no loſs to account, in a ſatisfactory manner, for the fixed air which appeared upon expiring through lime-water. During the inſpiration, while the mephitic acid is in a ſtate of chemical union with phlogiſton, it paſſes through the lime-water without affecting its tranſparency; but no ſooner is the air decompounded in the lungs, and part of the phlogiſton abſorbed, than the fixed air is ſet at liberty, and manifeſts itſelf by the turbid precipitation of lime. That "fixed air is *the produce of reſpiration*" was evident from the experiment of Dr. Black, to

* Dr. Black's portrait was voted to be drawn at the expence of a reſpectable Society, with a tube in his hand, we believe in the act of breathing through lime-water.

whoſe

whoſe unaſſuming inſtructions we have ſo often liſtened with delight; but it is to Dr. Harrington that the world is indebted for an explanation of the true manner in which that fixed air makes its appearance.

"We are entering, however, too far into the ſubject at preſent, and ſhall therefore here ſtop our remarks upon this paper of Dr. Prieſtley; but we will give the paſſage, on which we have ſo freely commented, at full length, that our readers may judge of the fidelity and propriety of our alluſions to it: "When I wrote the obſervations on reſpiration, publiſhed in the *Philoſophical Tranſactions*, Vol. LXVI. p. 226. I ſuppoſed, that in this animal proceſs there was ſimply an emiſſion of phlogiſton from the lungs. But the reſult of my late experiments on the tranſmiſſion of dephlogiſticated air and of inflammable and nitrous air, through a moiſt bladder interpoſed between them, and likewiſe the opinions and obſervations of others, ſoon convinced me, that, beſides the emiſſion of phlogiſton from the blood, dephlogiſticated air, or the acidifying principle of it, is at the ſame time received into the blood. Still, however, there remained a doubt how much of the dephlogiſticated air which we inhale enters the blood, becauſe part of it is employed in forming the fixed air, which is the produce of reſpiration, by its uniting with the phlogiſton diſcharged from the blood: for ſuch I take it for granted is the origin of that fixed air, ſince it is formed by the combination of the ſame principles in other, but exactly ſimilar circumſtances. Dr. Goodwyn's very ingenious obſervations prove, that dephlogiſticated air is *conſumed*, as he properly terms it, in reſpiration; but, for

any

any thing that he has noted, it may be wholly employed in forming the fixed air above mentioned."

"We ſhall leave, therefore, this matter to be ſettled by theſe two ingenious chemiſts themſelves, confident that every ſtep they took on this ground will ultimately tend to the eſtabliſhment of that theory of the atmoſphere which we have adopted.

"The importance of the ſubject need not be pointed out to the real chemiſt. What we have here, in a curſory manner, delivered reſpecting the precipitation of lime by means of air expired through lime-water, is one of thoſe links of the chain which will lead to the full eſtabliſhment of the Harringtonian theory, on a knowledge of which depends a true idea of the firſt principles both of animal and vegetable life.

"Short as this paper of Dr. Prieſtley's is, our criticiſms would ſwell to a very large ſize were we to enter as fully into the whole as we have done into the firſt paragraph. But this is altogether needleſs; for the deductions drawn from the experiments here detailed, reſpecting the quantity of phlogiſton contained in a given quantity of fixed air, are erroneous, the origin of the fixed air being different from what Dr. Prieſtley ſuppoſes it to be; and when he tells us that he *heated* charcoal of copper in certain quantities of atmoſpherical and *dephlogiſticated* air, the expreſſion is too lax and equivocal, too uncertain to argue upon. If by *heating* Dr. Prieſtley means the act of combuſtion, the origin of the fixed air will ſoon be underſtood without the neceſſity of ſuppoſing that it contains any phlogiſton; which, according to a very ingenious idea of his own, is now pretty well known to be of a nature rather more nearly allied to alkaline than

than to acid; and fixed air is well known to be an acid.

"The only juſt concluſion which Dr. Prieſtley ſeems to have drawn from theſe experiments is the following, which we know to be accurate: "Theſe experiments I repeated many times, and though not with the ſame, yet always with ſimilar reſults, the greateſt part of the dephlogiſticated air, but *never* the *whole*, paſſing the membrane of the lungs, and entering the blood."

"Dr. Prieſtley and Dr. Goodwyn may therefore now be appealed to as *convinced* that a conſiderable part of *de*phlogiſticated air is received into the blood. We would ſay that it is decompounded by the blood, and that the phlogiſton, which is one of its conſtituent parts, is attracted by it. And we ſincerely hope that theſe two gentlemen, who, as chemical experimentaliſts, are deſervedly high in the public eſteem, will ſeriouſly enquire into this ſimple fact, whether *de*phlogiſticated air, as they call it, is not actually a neutralized compound, conſiſting of phlogiſton and the nitrous acid, in a ſtate of chemical and aërial union? When once they are *convinced* of this fact, they will perhaps, without difficulty, admit that atmoſpherical air is alſo a compound, conſiſting of phlogiſton and the mephitic acid; water is the bond of union upon which the aërial ſtate of both depends. When, by chemical proceſſes, ſuch as reſpiration, combuſtion, or putrefaction, theſe ingredients are decompounded, the water, of neceſſity, returns to its original ſtate; but the acids, or the phlogiſton, (which Dr. Prieſtley with ſo much propriety has called the principle of alkalinity,) from the moment that a decompoſition takes place, no longer

merit

merit the appellation of air of any kind; they become fixed and ſolid ſubſtances, entering, in a variety of proceſſes, into as great a variety of compounds; which the bottles and glaſſes of chemiſts are perpetually detecting.

"Much is due to the ardour and the indefatigable induſtry of Dr. Prieſtley in theſe enquiries, whoſe name, notwithſtanding the unfortunate error in his outſet, will ever rank high in the liſt of aërial philoſophers. We call his error, viz, "*that phlogiſton is emitted from the blood in the act of reſpiration*," an unfortunate one. It has been truly ſo for the advancement of this important ſtudy; becauſe whilſt his great abilities are taken up with, and the *Philoſophical Tranſactions of the Royal Society*, are open to, the unprofitable labour of defending this abſurdity, the intereſts of true ſcience are betrayed. Philoſophers are chained to the retort, and the receiver, the crucible and the gun barrel; their time is waſted in correcting and refuting each other, inſtead of contemplating the heavens, where theſe proceſſes are carrying on, on the grand ſcale of nature; where the phenomena of dew, of rain, of hail, and ſnow; the cauſes of the riſing and falling of the barometer; the formation of fiery meteors, of thunder and lightning; and the vital ſpark which is inceſſantly drawn down from the atmoſphere, by the vegetation of plants, and the reſpiration of animals; are chemical proceſſes more worthy of their attention, and only to be explained on the principles of that theory which a love of truth and the advancement of ſcience obliges us to defend.

*** *On Saturday next will be delivered the concluding Paper of the First Volume; together with a General Title, Dedication, and Table of Contents.*

THE

MEDICAL SPECTATOR.

NUMBER XXVII.

A ſkilful Leech by long Experience made,
Who loves the Science, but deteſts the Trade.

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M DCC XCII.

THE MEDICAL SPECTATOR.

NUMBER XXVII.

SATURDAY, MARCH 31, 1792.

Nec Deus interſit niſi dignus vindice nodus
Incederit. HOR.

"We forgive him this, and a great deal more."
MONTHLY REVIEW, *Jan.* 1792.

THE preſent, which is probably the laſt Paper that my readers will receive from me for ſome months, renders it neceſſary that I ſhould acknowledge ſeveral letters which I have found it inconvenient to particulariſe ſooner.

The firſt I ſhall mention is from a gentleman, under the ſignature of CANDIDUS, who, miſtaking me for one of my correſpondents, reminds me of a promiſe in the 18th number of this work, that public atonement ſhould be made for any miſrepreſentation that may be pointed out. He aſſerts, that not only Dr. Ingenhouſz, but Dr. Harrington himſelf, hath ſuffered miſrepreſentation in the 11th number of the Medical Spectator, as the latter gentleman certainly admits that ſome plants do ſecrete a pure air when under the influence of the rays of the ſun. To this I muſt anſwer, that the obſervation is juſt; and I can with pleaſure add, that that correſpondent hath actually tranſmitted a Paper expreſſly written on the ſubject of vegetation and the theory of fertilizing the earth, in which he makes the acknowlegement to which CANDIDUS, with ſo much politeneſs and propriety, refers; and which in due time will appear in the ſecond volume

lume of the Medical Spectator, if the reception of the firſt ſhould be ſuch as to encourage the author to attempt a ſecond. In that paper, the ſeeming contradiction, that vegetation ſhould, in ſome inſtances, meliorate, and in all deteriorate, the atmoſphere (for at the very moment that ſuch plants are ſecreting pure air, they are actually decompounding and injuring the atmoſphere in a much greater proportion), is ſo far reconciled as to produce new and ſtriking evidence in ſupport of the Harringtonian Theory.

Dr. BLIGHT, in a ſhort note, informs Dr. Villers, that, as he takes in the Daily Advertiſer, which contains a greater variety, he has no further occaſion for the Medical Spectator.

The Reverend Mr. PICKTHANK, in a ſtyle of true irony, congratulates me on the production at laſt of ſome papers which are really good ones, viz. thoſe which I have borrowed from the Gentleman's Magazine; *but* at the ſame

time adds, that, as he takes in that valuable publication, he alſo has no farther occaſion for the Medical Spectator.

I have been honoured with a very ſerious query from Mr. PETER PESTLE, an old and very eminent apothecary, prefaced with an aſſurance, that, born within the ſound of Bow-bell, and having ſeldom traveled much beyond it, he is at a loſs to know how any perſon can ſpeak with certainty of the elevation of ſo many thouſand tuns of water into the atmoſphere in the ſhort time that I have allotted. Mr. PESTLE muſt ſuppoſe that I have meditated to very little purpoſe upon the banks of the Ganges, if I ſhould be at a loſs to anſwer this query myſelf. It ſhall, therefore, be explained by an example within the reach of his and every Londoner's conception. Let him look attentively at, or rather, aiming at the ſummit of a cockney's ambition in reſpect

ſpect to navigation, let him *ſhoot* through the center arch of London Bridge, calculating at the ſame time the quantity of water, and the momentum with which he is impelled; then let him ſtretch his imagination to the cataracts of the Nile, or the falls of Niagara; he will find fifty times the quantity of water, which appears to him ſo aſtoniſhing, delivered every hour into the boſom of the ocean. Let him aſk himſelf this queſtion, from whence does it all proceed? The anſwer will be, from the clouds. Another queſtion will follow, how does it get there? Another and another will ſucceed, till he will be convinced that the formation, deſtruction, and renovation of the atmoſphere is as regular and as rapid a proceſs as the circulation of the blood.

ATMOSPHERICUS rather pertly demands, when and where it hath been aſſerted, before the Royal Society, that heat may be *ſqueezed* out of the atmoſphere? "*I was led to ſuſpect, that*

" *elaſtic fluids, when they were mechani-*
" *cally expanded, attract or abſorb heat*
" *from the bodies within their vicinity;*
" *and that, when they were mechanically*
" *condenſed, the fluid matter of heat*
" *would be preſſed out of them.*" Philoſophical Tranſactions, Vol. LXXVIII, p. 48. If this is not ſufficient, take the following: " *More accurate obſervations on*
" *this ſubject, when the air is ſtationary,*
" *or the wind continues in the ſame quar-*
" *ter, might lead to the diſcovery of the*
" *quantity of heat* SQUEEZED *out of the*
" *atmoſphere by a certain preſſure.*" Ibid. p. 49.

But no correſpondent, which this publick ſituation hath procured, touches my feelings in ſo lively and ſo ſenſible a manner as he who is of the antient family of the PHILOS', who have long been famous for keeping up a correſpondence with every great literary character. This ingenious writer, who dates his letter from Leiceſter Square, begins in the familiar ſtyle, which uſed for-

formerly to be extremely acceptable to my great progenitor, viz. *Dear Spec.* After laviſhing a variety of compliments upon the lady who hath preſided with ſo much complacency and good-humour at the birth of the Medical Spectator, and his numerous progeny, he runs a very apt, but whimſical ſimile to an unconſcionable length, which prevents me from publiſhing his epiſtle entire. He calls this lady, with much propriety, the *Lucina*, the *ſage femme* of the Medical Spectator. One of the ſmalleſt of my numbers, he informs me, hath been compared to a ſeven months child; but at the ſame time very obligingly adds, that it is by no means to be conſidered as an abortion. The eighth paper he calls a monſtrous (good), and the eighteenth a monſtrous large production; judiciouſly including the word *good* in a parentheſis, that it may be left out, or ſuffered to remain, at the option of the reader. The twenty-firſt number he declares is an indiſputable

caſe of *ſuper-fœtation*. In a ſubſequent note he pronounces the twenty-fourth and the twenty-ſixth to be abſolutely illegitimate. After lamenting that my progeny are ſent into the world *naked*, he touches my feelings in the moſt tender point, by declaring that it is high time they were COMPLETELY DRESSED; he would indeed inſinuate that he means nothing more by this expreſſion than merely a wiſh to ſee my different numbers collected in a curious and very elegant binding, inlaid with Morocco, gold borders, ſilk head-bands and regiſters—"but more is meant than meets the ear;"—the gold edging, the double lettering, the regiſters, and ſilk head-bands, are not the only *dreſſing*, nor yet the TRIMMING, which an author ſometimes receives, and too often I fear deſerves; for, proceeding ſtep by ſtep, he reminds me that the world is anxious to know the number of numbers, or, in other words, when I mean to conclude a volume. This laſt hint ſounds

in

in my ears like a *memento mori*, or a diſcourſe upon the Day of Judgement to an habitual ſinner, in whom the ſparks of virtue are not yet entirely extinguiſhed. To conclude a volume is to brave the critic. "I tremble to think of it." Hitherto I have proceeded rapidly, and free from controul. Sentence after ſentence, and paper after paper, flowing freely from my pen, vainly hoping for eternity, without one previous thought, or neceſſary preparation for the day of judgement; till the favour of this ingenious correſpondent hath ſtopped me ſhort in my career.

It begins, indeed, to be time to conclude a volume; and I can only inform him, that it was my original intention to produce two ſmall ones during the winter, to remit my labours in ſummer, and to recommence them in the following autumn.

I have fixed, in my own mind, on this ſeaſon for exerciſing my ſpectatorial abilities, believing that the intellectual

powers

powers are moſt vigorous and productive from the autumnal to the vernal equinox; an obſervation which appears to be well eſtabliſhed from the common conſent of mankind, and by no means peculiar to the Britiſh Homer; for it is well known that all the great lecturing gentlemen in London and Edinburgh, who form in themſelves a very numerous claſs, and who, as *Doctor Doctorum*, I conſider my ſenior pupils, chiefly promulgate their opinions from autumn till ſpring.

My autumnal courſe, however, hath ſo far encroached upon the vernal, that, what with politeneſs to my numerous correſpondents, and the preſs of matter which is every day occurring, it has been ſo difficult to check my career, and to find a proper reſting place, that, inſtead of *two ſmall* volumes, I muſt this winter finiſh with *one* of a larger ſize than I originally intended; and leſt the μεγα βιβλιον μεγα κακον ſhould be ſounded in my ears, I am this day determined

determined to close my labours for the present season; and till the ensuing autumn shall be silent, unless some extraordinary circumstance calls me forth at an earlier period. And I can only further inform this ingenious correspondent, that in consequence of his epistle the propriety of concluding a volume and braving the critic has been regularly debated in the club.

I began by expressing the most unlimited confidence that the authors of the different reviews, agreeable to a sentiment of their own, would never condescend "to break a *Fly* upon the wheel."—Dr. DASH, who catches the ludicrous side of a question in a moment, and who mingles his compliment and his sarcasm in a manner which requires more than Gallic vanity pleasantly to separate, assured me, that that expression would apply only to a silly, a harmless, or a foolish fly. "Depend upon it," he added, "if they catch a fly with

with a ſting in his tail, they will cruſh him to atoms in a moment."

Mr. CANDOR and Mr. HAWKES-EYE were both of opinion, that I could do nothing better than throw myſelf upon their mercy, acknowledge my faults, write with more care, and in every future volume particularly avoid giving offence to their feelings either as critics or authors. "Their feelings," ſaid the Doctor, growing warm in the debate, "confound their feelings!—Villers ſhall defy them all, or, what will be better, he ſhall threaten—that he will write no more; and then the loſs to the Republic of letters will be ſuch, that they will be *afraid* to ſpeak unhandſomely of us."

Dr. PLACEBO, whoſe wit, though leſs frequent in its corruſcations, is more pure, ever ready to harmoniſe the company, and to ſoften the aſperity of debate with the milk of human kindneſs, declared, "that he had little confidence in the *fears* of a reviewer, and ſtill leſs in the *threats* of an author; the beſt of

whom he believed would rarely preſume to bid defiance to criticiſm; the beſt author," he added, "like the youth who is beſt qualified to paſs his examination, generally feels the greateſt palpitation at its approach." He ſeemed indeed to be firmly perſuaded that, notwithſtanding all that hath yet been advanced to the contrary, "the Reviewers are certainly not the very worſt judges of books. As to myſelf," he continued, "I have found them in general very impartial in their accounts of every book but one, and of that one they have certainly not diſcovered their uſual judgement or impartiality, their cenſure is abſurd, their praiſe cold and languid, their quotations niggardly and ill-ſelected, their meaning obſcure, and their wit *intolerable*."

Almoſt every man in the preſent day being an author, not a member of the club but who ſeemed inſtantly to demand what particular book Dr. PLACEBO alluded to. "My meaning," he replied, "is exactly conſonant to the feelings

feelings of every other unhappy author —I mean *my own*."—

The juſtice of the remark being admitted, Dr. GROTCHET, who is always ſtarting ſome whimſical idea, ſubmitted to Dr. DASH, whether it would not be better, inſtead of defying the Reviewers, to try a little flattery, and to DE-I-FY them all.

There is ſomething unaccountable in the nature of a pun, which, however execrable or rediculous, will often in deſpite of the judgement tickle the fancy. Dr. DASH inſtantly caught the idea, and, ſeconded by Mr. CUTWELL, confeſſed, that the whole tenure of the moſt authentic hiſtory will ſhew, that worſe men and much greater tyrants than the Reviewers have often been *deified*—Caligula and Nero, and Domitian who ſpitted his flies by thouſands—he was proceeding, when, ſenſible that I have indeed ſinned againſt the *moſt high*, I declared that I would not have heſitated a moment to adopt the idea of

Dr.

Dr. CROTCHET, had I not recollected that even in this circumſtance I have been already anticipated with ſome, though little, ſucceſs in theſe charming lines;

" Oh ye who high enthroned *omniſcient* ſit,
And rule ſupreme this wicked world of wit,
Who wrapt in clouds obſcur'd from mortal view,
God-like in power and ſelf-created too," &c. &c.

If I had not been thus anticipated, I would perhaps have exclaimed with Virgil:

Di, prohibete minas*; Di, talem avertite caſum,
Et placidi ſervate *Villerum*———
———— Dique Deæque omnes.—

To the altar of criticiſm I come a ſelf-created, ſelf-devoted victim.—Let my work be immolated on your ſacred altars; let my fly be transfixed, impaled upon the points of your ſharpeſt pens; but, if in any one inſtance I have found favour in your ſight, if I have brought one good-humoured ſmile upon your

* *tam meritos.*

coun-

countenances—till the fullneſs of time, when all things ſhall be accompliſhed—ſpare—Oh! ſpare my name—I aſk no more! * * *

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*** The

*** *The recommencement of this Work will depend much on the Sentence of the Critic, and on the result of a Tripartite Conversation betwixt the Printer, the Publisher, and the Author.—In the mean time, notwithstanding the present Interruption, Communications for this Work will continue to be received; but such as may relate more immediately to the Chemical and Philosophical Subjects, which form so large a Part of this Volume, will be noticed in a separate Publication.*

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